PREFACE

STATISTICS

This book is the result of my teaching experience in the subject and working experience in various softwares related to Statistics for Management to Sikkim Manipal University,Udupi students for about 3 years.It is designed to meet the requirements of research students at Masters and Ph D levels particularly Engineering and Management(M E, MCA MBA and Ph D ,Mathematics,Engg,Computer Applications and Business Administration).

The main highlight of the book is solved problem approach added for numerical question problems framed by the author.This book has a large number of problems solved in all 9 chapters.

I also thank various International software makers in the field of Statistics.

There are many problems framed by myself and can be best suitable for other Ph D students during their RESEARCH WORK in Statistics In the three fields mentioned below:

ENGINEERING-ALL FIELDS.(BACHELORS,MASTERS LEVEL AND DOCTORS LEVEL)

COMPUTER APPLICATIONS. (BACHELORS,MASTERS LEVEL AND DOCTORS LEVEL)

BUSINESS ADMINISTRATION. (BACHELORS,MASTERS LEVEL AND DOCTORS LEVEL)

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ABOUT THE AUTHOR

Author's name is Srinivas R Rao, born and done his school level education in Mangalore,Karnataka in a reputed private school Canara High School and PUC(+2) from Canara PUC in Science stream with PCMB as main subjects.

Later, pursuing LL.B(5 Years) course passed the degree in 1999 and done Diploma in Export Management ,Diploma in Customs and Central Excise , Diploma in Business Administration and some important IT subjects like MS-Office,Internet/Email,Visual Basic 6.0,C,C++,Java,Advanced Java,Oracle with D2K,HTML with Javascript,VBscript and Active Server Pages.

Joined as a FACULTY for students in a small computer Institute in 2002 July and later after 4 months worked in a company by name CRP Technologies(I) .P.Ltd as Branch Manager(Risk Manager) for Mangalore,Udupi and Kasargod areas from January 26 2003 to June 11 2007.In the year 2005 pursued MBA distance education course. Currently working as a FACULTY in Sikkim Manipal University , Udupi centre for BBA & MBA students and teaching numerical subjects like Statistics/Operations Research(Mgt Science/Quant. Techniques for Mgt)/Accounting and several numerical and difficult oriented subjects for distance education students in their weekend contact classes from July 2010 till present day.

Thanks

Regards

Author

(SRINIVAS R RAO)

ABOUT THE BOOK

This book is on Statistics which is a compulsory subject for B.E, M.E., B Tech, M.Tech.,B.Sc and M.Sc(Maths),MBA and Ph.D .However , any Bachelor level students can also read it as it contains a lot of numerical problems framed by me.

There are 9 main topics covered in this book : Descriptive Statistics,Dispersion,Probability,Probability Distributions,Normal Distributions,t-distributions,Hypotheses Testing,Estimation & Sample Size,Correlation & Regression with 40 individual topics & primary , important Statistics concepts covered with accurate working method and exact/correct answers for numerical problems with solutions framed by me.

I feel that this is a unique book as there are theory concepts and many numerical problems solved .

HAPPY READING.

THANKS

REGARDS

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STATISTICS

CHAPTERS:

- APPROXIMATE BINOMIAL USING NORMAL DISTRIBUTION
- FIND PROBABILITIES USING CENTRAL LIMIT THEOREM
- FIND PROBABILITY OF z-SCORE RANGE
- FIND PROBABILITY OF RANGE IN A NON STANDARD NORMAL DISTRIBUTION
- FIND z-SCORE FOR THE GIVEN PROBABILITY
- FIND z-SCORE OF THE PROPORTION

6. t-DISTRIBUTIONS:
   - FIND P VALUE
   - FIND t-VALUE FOR A CONFIDENCE LEVEL
   - FIND CRITICAL t-VALUE
7. HYPOTHESES TESTING:
   - TEST A CLAIM ABOUT THE MEAN
   - TEST A CLAIM USING THE t-TEST
   - TEST A CLAIM ABOUT THE MEAN (TWO-TAILED TEST)
   - TEST A CLAIM FROM A SMALL SAMPLE
8. ESTIMATION AND SAMPLE SIZE:
   - FIND SAMPLING DISTRIBUTION OF THE MEAN
   - FIND MAXIMUM ERROR OF THE ESTIMATE
   - FIND CONFIDENCE LEVEL OF THE ESTIMATE
   - DETERMINE SAMPLE SIZE REQUIRED FOR STATED CONFIDENCE LEVEL
   - FIND CONFIDENCE LEVEL FOR A SMALL SAMPLE
   - FIND MAXIMUM ERROR FOR A SMALL SAMPLE
9. CORRELATION AND REGRESSION:
   - FIND LINEAR CORRELATION COEFFICIENT
   - DETERMINE IF THE CORRELATION IS SIGNIFICANT.
   - FIND A REGRESSION LINE

Chapter 1:

Introduction to Statistics

1. Define the meaning of Statistics and other popular terms widely used in statistics
2. Describe the types of statistics—descriptive and inferential
3. Describe the sources of data, the types of data and variables
4. Understand the different levels of measurement
5. Describe the various methods of collecting data

What is Statistics?

• 'Statistics' is a science that involves the efficient use of numerical data relating to groups of individuals (or trials).

• Related to the collection, analysis and interpretation of data, including data collection design in the form of surveys and experiments.

• Defined as the science of:

. Collecting

. Organizing

. Presenting

. Analyzing

¤ Interpreting numerical data to efficiently help the process of making decisions

• A person who works with the applied statistics (the practical application of statistics), and is particularly eloquent in the way of thinking for the successful implementation of statistical analysis is called a 'statistician'.

• The essence of the profession is to measure, interpret and describe the world and patterns of human activity in it both in the private and public sectors.

• Those involved in marketing, accounting, quality control and others, such as consumers, sports players, administrators, educators, political parties, doctors, etc. on the other hand, tend to widely use the outcomes of various statistical techniques to help make decisions.

• Population size refers to a very large amount of data where making a census or a complete sampling of all of the population would be impractical or impossible.

• A sample is a subset of the population.

• Samples are collected and statistics are calculated from the samples in order to make conclusions about the population.

Types of Statistics

• Two types of statistics:

1. Descriptive statistics
2. Inferential statistics

• Descriptive statistics explains the sample data whereas inferential statistics tries to reach conclusions that go beyond the existing data.

Descriptive Statistics

• Statistical methods used to describe the basic features of the data that have been collected in a study.
• Provide simple summaries about the data and the measures.
• Together with simple graphics analysis, they form the basis of virtually every quantitative analysis of data.
• Use descriptive statistics simply to describe what's going on in our data.
• Used to present quantitative descriptions in a manageable form.
• Help us to facilitate large data in a way that easily makes sense.
• Each statistic reduces large data into a simple summary.

Inferential Statistics

• Methods used to find out something about a population based on a sample taken from that population.
• Also called statistical inference or inductive statistics.
• Most of the major inferential statistics come from a general family of statistical models known as the General Linear Model
. Includes the *t*-test
. Analysis of variance (ANOVA)
¤ Regression analysis
¤ Multivariate methods like factor analysis,multidimensional scaling, cluster analysis, discriminant function analysis, etc.

Sources of Data

• Two sources of data: ‘primary data’ and ‘secondary data’.

• Researchers conduct various research projects using questionnaires addressed directly to respondents, and their responses are known as the primary data.

• Other studies involving the use of data collected by others, such as information from census and earlier findings are also used by researchers—called secondary data.

• Primary data offer information tailored to specific studies,but are usually more expensive and takes a longer period to process.

• Secondary data are usually less expensive to be acquired and can be analyzed in a shorter period.

Primary Data

• ‘Primary data’ is the specific information collected by person who is doing research (researcher).

• Researchers collect data through surveys, interviews, direct observations and experiments.

• Essential to all areas of study because it is the original data of an experiment or observation that has not been processed or altered.

• Primary data can be prospective, retrospective, interventional or observational in nature.

• Prospective data is collected from subjects in real time

• Retrospective data is collected from archival records.

• Retrospective primary data provides information on past circumstances or behaviours.

• Interventional primary data can be gathered after the interventions of interest have been prospectively delivered, manipulated or managed.

• Observational primary data is collected by monitoring an intervention of interest without intervening in the delivery of the intervention.

Advantages:

1 Researchers can decide the type of method they will use in collecting the data and how long it will take them to gather that particular data.

2 Researchers can focus the data collection on specific issues of their research and enable them to collect more accurate information.

3 Researchers would know in detail how the data were gathered and hence, will be able to present original and unbiased data.

Disadvantages:

1 Primary data collection consumes a lot of time, effort and cost; the researchers will not only need to make certain preparations, in addition, they will need to manage both their time and cost effectively

2 Researchers will have to collect large volumes of data since they will interact with different people and environments; also they will need to spend a lot of time checking, analyzing and evaluating their findings before using such data.

Secondary Data

• Any material that has been collected from published records, such as newspapers, journals, research papers and so on.

• Sources of secondary data may include information from the census, records of employees of a company, or government statistical information such as Malaysia gross national income (GNI) in different sectors and many others.

• Easily available and cheap.

• Available for a longer period of time.

Advantages:

1 Using data from secondary sources is more convenient as it requires less time, effort and cost.

2 Secondary data helps to decide what further researches need to be done.

Disadvantages:

1 Secondary data may have transcription errors (reproduction errors).

2 Data from secondary sources may not meet the user's specific needs.

3 Not all secondary data is readily available or inexpensive.

4 The accuracy of the secondary data can be questionable.

Types of Data and Variables

• 'Data' refers to qualitative or quantitative attributes of a variable or set of variables.

• A variable is defined as any measured attribute that varies for different subjects.

• Two basic types of data

1. *Quantitative data*
2. *Qualitative data*

Quantitative Data

• Data that measures or identifies based on a numerical scale.

• Can be analyzed using statistical methods

. Values obtained can be illustrated using diagrams such as tables, graphs and histograms.

• Variable being studied can be reported numerically and is called a quantitative variable while the population is called a quantitative population.

• Quantitative variables can be further classified as either discrete or continuous.

• Discrete variables can assume only integer values (whole number such as 0, 1, 2, 3, 4, 5, 6, etc.).

• Discrete variables result from counting.

• Continuous variable can assume any value over a continuous range of possibilities.

¤ For example:

✓ Time (05:31:24 a.m)

✓ Temperature (35.5 °C)

✓ Weight (85.6 kilograms)

✓ Height (167.5 cm)

✓ Speed (183.7 km/h), etc.

• Continuous variables result from measuring something.

Qualitative Data

• Provide items in a variety of qualities or categories that may be 'informal' or even using features that is relatively obscure, such as warmth and taste.

• Although, the data that was originally collected as qualitative information, it can be quantitative if it is further simplified using the method of counting.

• Can include the obvious aspects such as gender, age or occupation.

• Can also be in the form of pass-fail, yes-no, or various other categories.

• If qualitative data uses categories based on ideas of subjective or non-existent, it is generally less valuable for scientific study than quantitative data.

• Sometimes it is possible to obtain quantitative estimates of the qualitative data.

¤ For example:

✓ People can be asked to rate their perceptions about their interest in a sport based on the Likert scale, that is, a rating or a psychometric scale commonly used in questionnaires.

✓ If a 10-point scale is used, '1' would signify 'strongly agree' and '10' would indicate ' strongly disagree'.

• When the characteristics or *variable* being studied is non-numeric (categorical), it is called a *qualitative variable* or an *attribute*, while the population is called a qualitative population.

• When the data are qualitative, we are usually interested in:

¤ How many?

¤ What proportion fall in each category?

• Qualitative variables are measured according to their specific categories and are often summarized in charts.

¤ For example:

✓ Gender is measured as ‘male’ or ‘female’.

✓ Marital status is measured as ‘single’ or ‘married’, and so on.

Levels of Measurement(NOIR)

• Can be classified into four categories:

. Nominal

. Ordinal

. Interval

¤ Ratio

Nominal Level

• The most ‘primitive’, ‘the lowest’, or the most limited type of measurement.

• In this level of measurement,

. Numbers or even words and letters are used to categorize the data.

• Suppose there are data about students who sat for an examination.

¤ Hence, in a nominal level of measurement,

✓ Students who passed the examination are classified as ‘P’

✓ Students who failed can be classified as ‘F’

Ordinal Level

• Describes the relationship within a group of items in some specified order.

• For example,

¤ For a student with the highest marks in a class—he will be placed as the first rank.

¤ Then, a student who received the second highest marks will be placed as the second rank, and so on.

• This level of measurement indicates an approximate ordering of the measurements. The difference or the ratio between any two types of rankings is not always the same along the scale.

Interval Level

• Includes all the features of ordinal level (classification and direction).

• States that the distances between intervals are the same along the interval scale from low to high (constant size).

• A popular example of this level of measurement is temperature in Celsius.

Ratio Level

• Is the 'highest' level of measurement

• Has all the characteristics of interval level.

• Major differences between interval and ratio levels of measurement
are:

(1) Ratio-level data has a meaningful zero point

(2) Ratio between any given two numbers is meaningful

• Divisions between the points on the scale have an equivalent distance between them

• Rankings assigned to the items are according to their size.

• Money is a good illustration,

¤ Having zero ringgit means 'you have none'

• Weight is another ratio-level measurement.

. If the dial on a scale is zero, there is a complete absence of weight.

¤ If you earn $40 000 a year and Abu earns $10 000, you earn four times what he does.

Methods of Collecting Data

• Data collection is an important aspect of any type of research study as inaccurate data collection can impact the results of a study and ultimately lead to invalid results.

• Investigator (researcher) must first of all, define the scope of his inquiry in every detail.

• The probable cost, time and labour required must next be estimated.

• If a complete coverage of information is not possible, for example, in market research, the sample size and method of sampling will have to be determined.

• Investigators collect primary data directly from the original sources.

• They can collect the necessary data appropriate for specific research needs, in the form they need.

• In most cases, primary data collection is costly and time-consuming.

• For some areas within social science research, such as socio-economic surveys, studies of social anthropology, market research, etc., necessary data are not always available from secondary sources, and they must be directly collected from the original or primary sources.

• In cases where the available secondary data are not suitable, again, the primary data should be collected.

Methods of Primary Data Collection

• 'Method' refers to a data collection mode or method

• 'Tool' is an instrument used to carry out the method.

• Some important methods of data collection:

1. Observations
2. Experimentation
3. Simulation
4. Interviewing
5. Panel Method
6. Mail Survey
7. Projective Techniques
8. Sociometry

Tools for Data Collection

• A number of different types of instruments or tools are used for data collection depending on the nature of the information to be gathered.

1. Types of Tools

✓ Observation schedule

✓ Interview guide and schedule

✓ Questionnaires

✓ Rating scale

✓ Checklists

✓ Data sheet

✓ Institution's schedule

2. Constructing Schedule and Questionnaire

✓ Schedule and questionnaire are the most common tools of data collection.

✓ These tools have many similarities and contain a set of questions related to the problem under study.

✓ Both these tools aim at retrieving information from the respondents.

✓ The content, structure, question words, question order, etc. are the same for all respondents.

✓ Each may use a different method; schedule is used for interviewing (the interviewer fills

The schedule) and questionnaire is used for mailing (the respondents fill out questionnaires by themselves).

✓ Schedule and questionnaire are constructed almost in the same way.

✓ It consists of some main steps as below:

(i) Identifying the research data
(ii) Prepare ‘dummy’ tables
(iii) Determine the level of the respondents
(iv) Decide methods of data collection
(v) Design instrument/tool
(vi) Assessment of the design instrument
(vii) Pre-testing
(viii) Specification of procedures
(ix) Planning format

3. Pilot Studies and Pre-Tests

• It is often difficult to design a large study without adequate knowledge of the problem; population to cover, level of knowledge, and so on.

. What are the issues and the concepts related to the problem under study?

. What is the best method of study?

. How long will it take and what is the cost?

. These and other related questions require a lot of knowledge about the subject matter.

• To obtain such pre-knowledge, a preliminary or pilot study should be conducted.

• Pilot study is a full-fledged miniature study of a problem

• Pre-test is a trial test of a specific aspect of the study such as method of data collection or instrument.

• Instrument of data collection is designed with reference to the data requirements of the study.

. It cannot be perfected purely on the basis of a critical scrutiny by the designer and other researchers.

. It should be empirically tested (should be tested using a collection of data). Hence, pre-testing of a draft instrument is rather indispensable.

• Pre-testing has several beneficial functions:

. To test whether the instrument will get the responses needed to realize the objectives of the study.

. To examine whether the content of the instrument is relevant and sufficient.

. To test the questions whether the words are clear and in accordance with the understanding of the respondents.

. To examine other qualitative aspects of the instrument such as the question structure and the sequence of questions.

. To develop appropriate procedure to deal with the instrument in the field.

1 Differentiate between descriptive and inferential statistics.

Descriptive statistics just explains the sample data, whereas inferential statistics tries to reach conclusions that go beyond the existing data.

2 Explain the differences between primary and secondary data.

Primary data is the specific information collected by the person who is doing the research,
whereas secondary data is any material that has been collected from published records
(newspapers, journals, research papers, etc).

3 Define these terms ,

Secondary data : Data that have been already collected by and readily available from other sources.

Census

The procedure of systematically acquiring and recording information about the members of a given population.

Inferential statistics

To apply the conclusions obtained from one experimental study to more general populations.

Quantitative data

Data measured or identified on a numerical scale.

4 Identify whether these are descriptive or inferential statistics.

(a) In general, men die earlier than women.

Inferential statistics and not Descriptive Statistics

(b) A researcher has concluded that the property values will increase

Inferential statistics and not Descriptive Statistics

(c) It is found that 55% of school children are not obese in which 40% are females.

Descriptive statistics and not Inferential Statistics

(d) A study based on a random sample has revealed that the school children are obese because they always preferred fast foods.

Inferential statistics and not Descriptive Statistics

Inferential Statistics are inferred from a certain phenomenon or an event or a group of events

Descriptive Statistics involve numericals and percentages instead of some inferences which are categorical or text based without numericals.

When we take an average we use or perform DESCRIPTIVE STATISTICS – MEASURES OF CENTRAL TENDENCY.

When we do hypotheses testing we use or perform INFERENTIAL STATISTICS.

5 State TRUE or FALSE.

(a) If a researcher uses descriptive statistics, the researcher will be able to conclude about the population based on a sample. FALSE
(b) Probability is the basis of the inferential statistics. TRUE
(c) Marital status is an example of a qualitative data. TRUE
(d) The highest level of measurement is the ratio level. TRUE
(e) The examination grades (A to F) are an example of ordinal scale measurement. FALSE
(f) Phone survey is the most expensive method of data collection. FALSE

6 Identify the type of measurements (nominal, ordinal, interval and ratio) :

LEVELS OF MEASUREMENT: NOIR

(a) Test grades. Interval
(b) Size of shoe. Ordinal
(c) Type of blood. Nominal

(d) Weight of chicken in kg. Ratio
(e) The top five supermodels. Ordinal
(f) Rating given to the cleanliness of restaurants. Interval
(g) The times recorded by the runners in a 100-metres sprint. Ratio
(h) The ranking of the top 10 world's richest people for 2011. Ordinal
(i) The positions in a soccer team such as striker and goalkeeper. Ordinal
(j) The average day temperature recorded at 14 major cities in the world . Interval
(k) The number of accidents on a highway during the New Year festival. Ratio

Chapter 1:

Introduction to Statistics

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Problem 1

8,2,12,4,5

Arrange the terms in ascending order.
2,4,5,8,12

The median is the middle term in the arranged data set.
5

Problem 3

16,18,4,19,119

Arrange the terms in ascending order.
4,16,18,19,119

The median is the middle term in the arranged data set.
18

Problem 4

8,30,18,24,324

Arrange the terms in ascending order.
8,18,24,30,324

The median is the middle term in the arranged data set.
24

Problem 5

12,15,19,23,27,31

The median is the middle term in the arranged data set.

$$\frac{19+23}{2}$$

Add 23 to 19 to get 42.

$$\frac{42}{2}$$

Reduce the expression $\frac{42}{2}$ by removing a factor of 2 from the numerator and denominator.

21

Problem 6

22,5,9,33,47,71,76,81

Arrange the terms in ascending order.

5,9,22,33,47,71,76,81

The median is the middle term in the arranged data set.

$$\frac{33+47}{2}$$

Add 47 to 33 to get 80.

$$\frac{80}{2}$$

Reduce the expression $\frac{80}{2}$ by removing a factor of 2 from the numerator and denominator.

40

Problem 1

11,3,3,4,8,12,212,415

Arrange the terms in ascending order.
3,3,4,8,11,12,212,415

The median is the middle term in the arranged data set.

$$\frac{8+11}{2}$$

Add 11 to 8 to get 19.

$$\frac{19}{2}$$

Problem 2

112.8,3.12,53.45,99.99,100,210.65

Arrange the terms in ascending order.

3.12,53.45,99.99,100,112.8,210.65

The median is the middle term in the arranged data set.

$$\frac{99.99+100}{2}$$

Add 100 to 99.99 to get 199.99.

$$\frac{199.99}{2}$$

Reduce the expression $\frac{199.99}{2}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

99.995

Problem 3

600,237,237,465,340,125,565

Arrange the terms in ascending order.
125,237,237,340,465,565,600

The median is the middle term in the arranged data set.
340

Problem 4

600,237,237,465,340,125,565,999.99

Arrange the terms in ascending order.
125,237,237,340,465,565,600,999.99

The median is the middle term in the arranged data set.

$$\frac{340+465}{2}$$

Add 465 to 340 to get 805.

$$\frac{805}{2}$$

Problem 6

18.2,21.3,34.5,45.6,54.3,65.7,70.1,76.3

The median is the middle term in the arranged data set.

$$\frac{45.6+54.3}{2}$$

Add 54.3 to 45.6 to get 99.9.

$$\frac{99.9}{2}$$

Reduce the expression $\frac{99.9}{2}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

49.95

Problem 1

1,16,16,216,1

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{1+16+16+216+1}{5}$$

Add 16 to 1 to get 17.

$$\frac{17+16+216+1}{5}$$

Add 16 to 17 to get 33.

$$\frac{33+216+1}{5}$$

Add 216 to 33 to get 249.

$$\frac{249+1}{5}$$

Add 1 to 249 to get 250.

$$\frac{250}{5}$$

Reduce the expression $\frac{250}{5}$ by removing a factor of 5 from the numerator and denominator.

Problem 1 (Page 2)

50

Problem 1

4,14,24

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{4+14+24}{3}$$

Add 14 to 4 to get 18.

$$\frac{18+24}{3}$$

Add 24 to 18 to get 42.

$$\frac{42}{3}$$

Reduce the expression $\frac{42}{3}$ by removing a factor of 3 from the numerator and denominator.

14

Problem 2

20,220,15,4,1,20,5

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{20+220+15+4+1+20+5}{7}$$

Add 220 to 20 to get 240.

$$\frac{240+15+4+1+20+5}{7}$$

Add 15 to 240 to get 255.

$$\frac{255+4+1+20+5}{7}$$

Add 4 to 255 to get 259.

$$\frac{259+1+20+5}{7}$$

Add 1 to 259 to get 260.

$$\frac{260+20+5}{7}$$

Add 20 to 260 to get 280.

$$\frac{280+5}{7}$$

Problem 2 (Page 2)

Add 5 to 280 to get 285.

$$\frac{285}{7}$$

Divide.

40.7143

Problem 3

13,213,3.12,41.23,56.2

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{13+213+3.12+41.23+56.2}{5}$$

Add 213 to 13 to get 226.

$$\frac{226+3.12+41.23+56.2}{5}$$

Add 3.12 to 226 to get 229.12.

$$\frac{229.12+41.23+56.2}{5}$$

Add 41.23 to 229.12 to get 270.35.

$$\frac{270.35+56.2}{5}$$

Add 56.2 to 270.35 to get 326.55.

$$\frac{326.55}{5}$$

Reduce the expression $\frac{326.55}{5}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

Problem 3 (Page 2)

65.31

Problem 1

21.6,27.75,7.55,11.85,14.15,11.45,6.78,36.95,9.1

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{21.6+27.75+7.55+11.85+14.15+11.45+6.78+36.95+9.1}{9}$$

Add 27.75 to 21.6 to get 49.35.

$$\frac{49.35+7.55+11.85+14.15+11.45+6.78+36.95+9.1}{9}$$

Add 7.55 to 49.35 to get 56.9.

$$\frac{56.9+11.85+14.15+11.45+6.78+36.95+9.1}{9}$$

Add 11.85 to 56.9 to get 68.75.

$$\frac{68.75+14.15+11.45+6.78+36.95+9.1}{9}$$

Add 14.15 to 68.75 to get 82.9.

$$\frac{82.9+11.45+6.78+36.95+9.1}{9}$$

Add 11.45 to 82.9 to get 94.35.

$$\frac{94.35+6.78+36.95+9.1}{9}$$

Problem 1 (Page 2)

Add 6.78 to 94.35 to get 101.13.

$$\frac{101.13+36.95+9.1}{9}$$

Add 36.95 to 101.13 to get 138.08.

$$\frac{138.08+9.1}{9}$$

Add 9.1 to 138.08 to get 147.18.

$$\frac{147.18}{9}$$

Reduce the expression $\frac{147.18}{9}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

16.3533

Problem 2

-27.54,30.65,130.45,-12.23,45.02,56.79,98.02,34.56

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{-27.54+30.65+130.45-12.23+45.02+56.79+98.02+34.56}{8}$$

Add 30.65 to -27.54 to get 3.11.

$$\frac{3.11+130.45-12.23+45.02+56.79+98.02+34.56}{8}$$

Add 130.45 to 3.11 to get 133.56.

$$\frac{133.56-12.23+45.02+56.79+98.02+34.56}{8}$$

Subtract 12.23 from 133.56 to get 121.33.

$$\frac{121.33+45.02+56.79+98.02+34.56}{8}$$

Add 45.02 to 121.33 to get 166.35.

$$\frac{166.35+56.79+98.02+34.56}{8}$$

Add 56.79 to 166.35 to get 223.14.

$$\frac{223.14+98.02+34.56}{8}$$

Problem 2 (Page 2)

Add 98.02 to 223.14 to get 321.16.

$$\frac{321.16+34.56}{8}$$

Add 34.56 to 321.16 to get 355.72.

$$\frac{355.72}{8}$$

Reduce the expression $\frac{355.72}{8}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

44.465

Problem 1

100.5,200.1,300.2,400.3,500.4,600.6,700.4,800.6,900.7,1000.9

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{100.5+200.1+300.2+400.3+500.4+600.6+700.4+800.6+900.7+1000.9}{10}$$

Add 200.1 to 100.5 to get 300.6.

$$\frac{300.6+300.2+400.3+500.4+600.6+700.4+800.6+900.7+1000.9}{10}$$

Add 300.2 to 300.6 to get 600.8.

$$\frac{600.8+400.3+500.4+600.6+700.4+800.6+900.7+1000.9}{10}$$

Add 400.3 to 600.8 to get 1001.1.

$$\frac{1001.1+500.4+600.6+700.4+800.6+900.7+1000.9}{10}$$

Add 500.4 to 1001.1 to get 1501.5.

$$\frac{1501.5+600.6+700.4+800.6+900.7+1000.9}{10}$$

Add 600.6 to 1501.5 to get 2102.1.

$$\frac{2102.1+700.4+800.6+900.7+1000.9}{10}$$

Problem 1 (Page 2)

Add 700.4 to 2102.1 to get 2802.5.

$$\frac{2802.5+800.6+900.7+1000.9}{10}$$

Add 800.6 to 2802.5 to get 3603.1.

$$\frac{3603.1+900.7+1000.9}{10}$$

Add 900.7 to 3603.1 to get 4503.8.

$$\frac{4503.8+1000.9}{10}$$

Add 1000.9 to 4503.8 to get 5504.7.

$$\frac{5504.7}{10}$$

Reduce the expression $\frac{5504.7}{10}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

550.47

Problem 1

3.5,4,6,16.8,8,2,12.6

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{3.5+4+6+16.8+8+2+12.6}{7}$$

Add 4 to 3.5 to get 7.5.

$$\frac{7.5+6+16.8+8+2+12.6}{7}$$

Add 6 to 7.5 to get 13.5.

$$\frac{13.5+16.8+8+2+12.6}{7}$$

Add 16.8 to 13.5 to get 30.3.

$$\frac{30.3+8+2+12.6}{7}$$

Add 8 to 30.3 to get 38.3.

$$\frac{38.3+2+12.6}{7}$$

Add 2 to 38.3 to get 40.3.

$$\frac{40.3+12.6}{7}$$

Problem 1 (Page 2)

Add 12.6 to 40.3 to get 52.9.

$\frac{52.9}{7}$

Reduce the expression $\frac{52.9}{7}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

7.5571

Problem 1

17,10,310,210,215,234,310,311,326,328

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{17+10+310+210+215+234+310+311+326+328}{10}$$

Add 10 to 17 to get 27.

$$\frac{27+310+210+215+234+310+311+326+328}{10}$$

Add 310 to 27 to get 337.

$$\frac{337+210+215+234+310+311+326+328}{10}$$

Add 210 to 337 to get 547.

$$\frac{547+215+234+310+311+326+328}{10}$$

Add 215 to 547 to get 762.

$$\frac{762+234+310+311+326+328}{10}$$

Add 234 to 762 to get 996.

$$\frac{996+310+311+326+328}{10}$$

Problem 1 (Page 2)

Add 310 to 996 to get 1306.

$$\frac{1306+311+326+328}{10}$$

Add 311 to 1306 to get 1617.

$$\frac{1617+326+328}{10}$$

Add 326 to 1617 to get 1943.

$$\frac{1943+328}{10}$$

Add 328 to 1943 to get 2271.

$$\frac{2271}{10}$$

Divide.

227.1

Problem 1

8,6,20,12,1,9,19,11.5,14.5,21.3

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$\frac{8+6+20+12+1+9+19+11.5+14.5+21.3}{10}$$

Add 6 to 8 to get 14.

$$\frac{14+20+12+1+9+19+11.5+14.5+21.3}{10}$$

Add 20 to 14 to get 34.

$$\frac{34+12+1+9+19+11.5+14.5+21.3}{10}$$

Add 12 to 34 to get 46.

$$\frac{46+1+9+19+11.5+14.5+21.3}{10}$$

Add 1 to 46 to get 47.

$$\frac{47+9+19+11.5+14.5+21.3}{10}$$

Add 9 to 47 to get 56.

$$\frac{56+19+11.5+14.5+21.3}{10}$$

Problem 1 (Page 2)

Add 19 to 56 to get 75.

$$\frac{75+11.5+14.5+21.3}{10}$$

Add 11.5 to 75 to get 86.5.

$$\frac{86.5+14.5+21.3}{10}$$

Add 14.5 to 86.5 to get 101.

$$\frac{101+21.3}{10}$$

Add 21.3 to 101 to get 122.3.

$$\frac{122.3}{10}$$

Reduce the expression $\frac{122.3}{10}$ by removing a factor of <C><I>-16572022<i> from the numerator and denominator.

12.23

Problem 1

5,8,15,20,220

The mode is the value that occurs most in the data set. In this case, 20,220,8,15,5 occurs 1 times.

20,220,8,15,5

Problem 1

5,10,15,20,25,5,1012,5

The mode is the value that occurs most in the data set. In this case, 5 occurs 3 times.

5

Problem 1

5,10,15,20,10,5,10,13

The mode is the value that occurs most in the data set. In this case, 10 occurs 3 times.

10

Problem 1

18,118,7,18,29,8

The mode is the value that occurs most in the data set. In this case, 18 occurs 2 times.
18

Problem 1

29,30,1,21,30,11,13,14,30,29,28

The mode is the value that occurs most in the data set. In this case, 30 occurs 3 times.

30

Problem 1

29.5,30,1,21,130,29.5,128

The mode is the value that occurs most in the data set. In this case, 29.5 occurs 2 times.

29.5

Problem 1

8,1,21,18,19,21,41,18

The mode is the value that occurs most in the data set. In this case, 21,18 occurs 2 times.
21,18

Problem 1

5,18,118,7,12,14,18,118,42

The mode is the value that occurs most in the data set. In this case, 118,18 occurs 2 times.

118,18

Problem 1

11,211,6,10,19,8,211,10,5,211,41,211

The mode is the value that occurs most in the data set. In this case, 211 occurs 4 times.

211

Problem 1

17,17,28,228,25,17,8

The mode is the value that occurs most in the data set. In this case, 17 occurs 3 times.
17

Problem 1

1,15,115,4

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[3]{1 \cdot 15 \cdot 115 \cdot 4}$

Multiply 1 by 15 to get 15.

$\sqrt[3]{15 \cdot 115 \cdot 4}$

Multiply 15 by 115 to get 1725.

$\sqrt[3]{1725 \cdot 4}$

Multiply 1725 by 4 to get 6900.

$\sqrt[3]{6900}$

Take the cube root of 6900 and remove the factor of 19.0378 from under the radical.

19.0378

Problem 1

21,15,11,14

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[3]{21 \cdot 15 \cdot 11 \cdot 14}$

Multiply 21 by 15 to get 315.

$\sqrt[3]{315 \cdot 11 \cdot 14}$

Multiply 315 by 11 to get 3465.

$\sqrt[3]{3465 \cdot 14}$

Multiply 3465 by 14 to get 48510.

$\sqrt[3]{48510}$

Take the cube root of 48510 and remove the factor of 36.4707 from under the radical.

36.4707

Problem 1

2,4,19

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt{2 \cdot 4 \cdot 19}$

Multiply 2 by 4 to get 8.

$\sqrt{8 \cdot 19}$

Multiply 8 by 19 to get 152.

$\sqrt{152}$

Pull all perfect square roots out from under the radical. In this case, remove the 2 because it is a perfect square.

$2 \cdot \sqrt{38}$

Multiply 2 by $\sqrt{38}$ to get $2\sqrt{38}$.

$2\sqrt{38}$

Take the square root of 38 and remove the factor of 6.1644 from under the radical.

6.1644

Problem 1

14,12,22,17,317,22

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[5]{14\cdot12\cdot22\cdot17\cdot317\cdot22}$

Multiply 14 by 12 to get 168.

$\sqrt[5]{168\cdot22\cdot17\cdot317\cdot22}$

Multiply 168 by 22 to get 3696.

$\sqrt[5]{3696\cdot17\cdot317\cdot22}$

Multiply 3696 by 17 to get 62832.

$\sqrt[5]{62832\cdot317\cdot22}$

Multiply 62832 by 317 to get 19917744.

$\sqrt[5]{19917744\cdot22}$

Multiply 19917744 by 22 to get 438190368.

$\sqrt[5]{438190368}$

Pull all perfect 5th roots out from under the radical. In this case, remove the 2 because it is a perfect 5th.

$2\cdot\sqrt[5]{13693449}$

Problem 1 (Page 2)

Multiply 2 by $\sqrt[5]{13693449}$ to get $2\sqrt[5]{13693449}$.

$2\sqrt[5]{13693449}$

Take the 5th root of 13693449 and remove the factor of 26.7487 from under the radical.

26.7487

Problem 1

29,229,12,18,23,21,15

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[6]{29 \cdot 229 \cdot 12 \cdot 18 \cdot 23 \cdot 21 \cdot 15}$

Multiply 29 by 229 to get 6641.

$\sqrt[6]{6641 \cdot 12 \cdot 18 \cdot 23 \cdot 21 \cdot 15}$

Multiply 6641 by 12 to get 79692.

$\sqrt[6]{79692 \cdot 18 \cdot 23 \cdot 21 \cdot 15}$

Multiply 79692 by 18 to get 1434456.

$\sqrt[6]{1434456 \cdot 23 \cdot 21 \cdot 15}$

Multiply 1434456 by 23 to get 32992488.

$\sqrt[6]{32992488 \cdot 21 \cdot 15}$

Multiply 32992488 by 21 to get 692842248.

$\sqrt[6]{692842248 \cdot 15}$

Multiply 692842248 by 15 to get 10392633720.

$\sqrt[6]{10392633720}$

Problem 1 (Page 2)

Take the 6th root of 10392633720 and remove the factor of 46.7148 from under the radical.

46.7148

Problem 1

24,124,21,22

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[3]{24\cdot124\cdot21\cdot22}$

Multiply 24 by 124 to get 2976.

$\sqrt[3]{2976\cdot21\cdot22}$

Multiply 2976 by 21 to get 62496.

$\sqrt[3]{62496\cdot22}$

Multiply 62496 by 22 to get 1374912.

$\sqrt[3]{1374912}$

Pull all perfect cube roots out from under the radical. In this case, remove the 4 because it is a perfect cube.

$4\cdot\sqrt[3]{21483}$

Multiply 4 by $\sqrt[3]{21483}$ to get $4\sqrt[3]{21483}$.

$4\sqrt[3]{21483}$

Take the cube root of 21483 and remove the factor of 27.7992 from under the radical.

27.7992

Problem 1

9,8,9,16,116

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[4]{9 \cdot 8 \cdot 9 \cdot 16 \cdot 116}$

Multiply 9 by 8 to get 72.

$\sqrt[4]{72 \cdot 9 \cdot 16 \cdot 116}$

Multiply 72 by 9 to get 648.

$\sqrt[4]{648 \cdot 16 \cdot 116}$

Multiply 648 by 16 to get 10368.

$\sqrt[4]{10368 \cdot 116}$

Multiply 10368 by 116 to get 1202688.

$\sqrt[4]{1202688}$

Pull all perfect 4th roots out from under the radical. In this case, remove the 12 because it is a perfect 4th.

$12 \cdot \sqrt[4]{58}$

Multiply 12 by $\sqrt[4]{58}$ to get $12\sqrt[4]{58}$.

$12\sqrt[4]{58}$

Problem 1 (Page 2)

Take the 4th root of 58 and remove the factor of 2.7597 from under the radical.

2.7597

Problem 1

9,8,9,16,11,5,12,14,15,7,9

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[10]{9\cdot8\cdot9\cdot16\cdot11\cdot5\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 9 by 8 to get 72.

$\sqrt[10]{72\cdot9\cdot16\cdot11\cdot5\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 72 by 9 to get 648.

$\sqrt[10]{648\cdot16\cdot11\cdot5\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 648 by 16 to get 10368.

$\sqrt[10]{10368\cdot11\cdot5\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 10368 by 11 to get 114048.

$\sqrt[10]{114048\cdot5\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 114048 by 5 to get 570240.

$\sqrt[10]{570240\cdot12\cdot14\cdot15\cdot7\cdot9}$

Multiply 570240 by 12 to get 6842880.

$\sqrt[10]{6842880\cdot14\cdot15\cdot7\cdot9}$

Problem 1 (Page 2)

Multiply 6842880 by 14 to get 95800320.

$\sqrt[10]{95800320 \cdot 15 \cdot 7 \cdot 9}$

Multiply 95800320 by 15 to get 1437004800.

$\sqrt[10]{1437004800 \cdot 7 \cdot 9}$

Multiply 1437004800 by 7 to get 10059033600.

$\sqrt[10]{10059033600 \cdot 9}$

Multiply 10059033600 by 9 to get 90531302400.

$\sqrt[10]{90531302400}$

Pull all perfect 10th roots out from under the radical. In this case, remove the 2 because it is a perfect 10th.

$2 \cdot \sqrt[10]{88409475}$

Multiply 2 by $\sqrt[10]{88409475}$ to get $2\sqrt[10]{88409475}$.

$2\sqrt[10]{88409475}$

Take the 10th root of 88409475 and remove the factor of 6.2323 from under the radical.

6.2323

Problem 2

1.24,3.12,8.16,8.05,18.13,20.45,14.5

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[6]{1.24 \cdot 3.12 \cdot 8.16 \cdot 8.05 \cdot 18.13 \cdot 20.45 \cdot 14.5}$

Multiply 1.24 by 3.12 to get 3.8688.

$\sqrt[6]{3.8688 \cdot 8.16 \cdot 8.05 \cdot 18.13 \cdot 20.45 \cdot 14.5}$

Multiply 3.8688 by 8.16 to get 31.5694.

$\sqrt[6]{31.5694 \cdot 8.05 \cdot 18.13 \cdot 20.45 \cdot 14.5}$

Multiply 31.5694 by 8.05 to get 254.1337.

$\sqrt[6]{254.1337 \cdot 18.13 \cdot 20.45 \cdot 14.5}$

Multiply 254.1337 by 18.13 to get 4607.4446.

$\sqrt[6]{4607.4446 \cdot 20.45 \cdot 14.5}$

Multiply 4607.4446 by 20.45 to get 94222.2422.

$\sqrt[6]{94222.2422 \cdot 14.5}$

Multiply 94222.2422 by 14.5 to get 1366222.5114.

$\sqrt[6]{1366222.5114}$

Problem 2 (Page 2)

Take the 6th root of 1366222.5114 to get 10.5338.

10.5338

Problem 2

2.4,3.2,8.5,8.05,1.9,2.1,0.45,1.4

The geometric mean of a set of numbers is the nth root of the product of each terms, where n is the number of terms in the set.

$\sqrt[7]{2.4 \cdot 3.2 \cdot 8.5 \cdot 8.05 \cdot 1.9 \cdot 2.1 \cdot 0.45 \cdot 1.4}$

Multiply 2.4 by 3.2 to get 7.68.

$\sqrt[7]{7.68 \cdot 8.5 \cdot 8.05 \cdot 1.9 \cdot 2.1 \cdot 0.45 \cdot 1.4}$

Multiply 7.68 by 8.5 to get 65.28.

$\sqrt[7]{65.28 \cdot 8.05 \cdot 1.9 \cdot 2.1 \cdot 0.45 \cdot 1.4}$

Multiply 65.28 by 8.05 to get 525.504.

$\sqrt[7]{525.504 \cdot 1.9 \cdot 2.1 \cdot 0.45 \cdot 1.4}$

Multiply 525.504 by 1.9 to get 998.4576.

$\sqrt[7]{998.4576 \cdot 2.1 \cdot 0.45 \cdot 1.4}$

Multiply 998.4576 by 2.1 to get 2096.761.

$\sqrt[7]{2096.761 \cdot 0.45 \cdot 1.4}$

Multiply 2096.761 by 0.45 to get 943.5424.

$\sqrt[7]{943.5424 \cdot 1.4}$

Problem 2 (Page 2)

Multiply 943.5424 by 1.4 to get 1320.9594.

$\sqrt[7]{1320.9594}$

Take the 7th root of 1320.9594 to get 2.7915.

2.7915

Problem 1

9,10,3,13

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(9)^2+(10)^2+(3)^2+(13)^2}{4}}$$

Simplify the result.

9.4736

Problem 1

20,12,20,120,17

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(20)^2+(12)^2+(20)^2+(120)^2+(17)^2}{5}}$$

Simplify the result.

55.916

Problem 1

13,113,2

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(13)^2+(113)^2+(2)^2}{3}}$$

Simplify the result.

$$\sqrt{4314}$$

Problem 1

16,22,22,11,11,311,11,30,26

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(16)^2+(22)^2+(22)^2+(11)^2+(11)^2+(311)^2+(11)^2+(30)^2+(26)^2}{9}}$$

Simplify the result.

105.3481

Problem 1

25,15,11,13,5,35

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(25)^2+(15)^2+(11)^2+(13)^2+(5)^2+(35)^2}{6}}$$

Simplify the result.

19.9583

Problem 1

12,28,25,19,25,9,39

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(12)^2+(28)^2+(25)^2+(19)^2+(25)^2+(9)^2+(39)^2}{7}}$$

Simplify the result.

24.3222

Problem 1

18.21,21.8,15.25

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(18.21)^2+(21.8)^2+(15.25)^2}{3}}$$

Simplify the result.

18.6137

Problem 1

9,11,16,21.6,23.4,45.3

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(9)^2+(11)^2+(16)^2+(21.6)^2+(23.4)^2+(45.3)^2}{6}}$$

Simplify the result.

24.2357

Problem 1

3,13,15,12,16,23,26,28,30.1

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(3)^2+(13)^2+(15)^2+(12)^2+(16)^2+(23)^2+(26)^2+(28)^2+(30.1)^2}{9}}$$

Simplify the result.

20.2704

Problem 1

23,19,31.9,41.8,50.6,12.8,31,9

The quadratic mean (rms) of a set of numbers is the sum divided by the number of terms.

$$\sqrt{\frac{(23)^2+(19)^2+(31.9)^2+(41.8)^2+(50.6)^2+(12.8)^2+(31)^2+(9)^2}{8}}$$

Simplify the result.

30.457

Problem 1

2,7,17,20,220,2,6

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{2+7+17+20+220+2+6}{7}$$

Add 7 to 2 to get 9.

$$x_{avg}=\frac{9+17+20+220+2+6}{7}$$

Add 17 to 9 to get 26.

$$x_{avg}=\frac{26+20+220+2+6}{7}$$

Add 20 to 26 to get 46.

$$x_{avg}=\frac{46+220+2+6}{7}$$

Add 220 to 46 to get 266.

$$x_{avg}=\frac{266+2+6}{7}$$

Add 2 to 266 to get 268.

$$x_{avg}=\frac{268+6}{7}$$

Problem 1 (Page 2)

Add 6 to 268 to get 274.

$$x_{avg}=\frac{274}{7}$$

Divide.

$$x_{avg}=39.1429$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[2-39.1429]^2+[7-39.1429]^2+[17-39.1429]^2+[20-39.1429]^2+[220-39.142}{7-1}}$$

Simplify the result.

$$s=80.0592$$

Approximate the result.

$$s\approx 80.0592$$

Problem 1

14,5,11,211

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{14+5+11+211}{4}$$

Add 5 to 14 to get 19.

$$x_{avg}=\frac{19+11+211}{4}$$

Add 11 to 19 to get 30.

$$x_{avg}=\frac{30+211}{4}$$

Add 211 to 30 to get 241.

$$x_{avg}=\frac{241}{4}$$

Divide.

$$x_{avg}=60.25$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Problem 1 (Page 2)

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[14-60.25]^2+[5-60.25]^2+[11-60.25]^2+[211-60.25]^2}{4-1}}$$

Simplify the result.

$s=100.5696$

Approximate the result.

$s\approx 100.5696$

Problem 1

25,7,17,6,15,14,29,3,28

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{25+7+17+6+15+14+29+3+28}{9}$$

Add 7 to 25 to get 32.

$$x_{avg}=\frac{32+17+6+15+14+29+3+28}{9}$$

Add 17 to 32 to get 49.

$$x_{avg}=\frac{49+6+15+14+29+3+28}{9}$$

Add 6 to 49 to get 55.

$$x_{avg}=\frac{55+15+14+29+3+28}{9}$$

Add 15 to 55 to get 70.

$$x_{avg}=\frac{70+14+29+3+28}{9}$$

Add 14 to 70 to get 84.

$$x_{avg}=\frac{84+29+3+28}{9}$$

Problem 1 (Page 2)

Add 29 to 84 to get 113.

$$x_{avg}=\frac{113+3+28}{9}$$

Add 3 to 113 to get 116.

$$x_{avg}=\frac{116+28}{9}$$

Add 28 to 116 to get 144.

$$x_{avg}=\frac{144}{9}$$

Reduce the expression $\frac{144}{9}$ by removing a factor of 9 from the numerator and denominator.

$$x_{avg}=16$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[25-16]^2+[7-16]^2+[17-16]^2+[6-16]^2+[15-16]^2+[14-16]^2+[29-16]^2+[3-16}{9-1}}$$

Problem 1 (Page 3)

Simplify the result.

$s = \frac{\sqrt{15}}{6}$

Approximate the result.

$s \approx 0.6455$

Problem 1

9,16,14,20,120

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg} = \frac{9+16+14+20+120}{5}$$

Add 16 to 9 to get 25.

$$x_{avg} = \frac{25+14+20+120}{5}$$

Add 14 to 25 to get 39.

$$x_{avg} = \frac{39+20+120}{5}$$

Add 20 to 39 to get 59.

$$x_{avg} = \frac{59+120}{5}$$

Add 120 to 59 to get 179.

$$x_{avg} = \frac{179}{5}$$

Divide.

$$x_{avg} = 35.8$$

Problem 1 (Page 2)

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[9-35.8]^2+[16-35.8]^2+[14-35.8]^2+[20-35.8]^2+[120-35.8]^2}{5-1}}$$

Simplify the result.

$s=47.2356$

Approximate the result.

$s\approx 47.2356$

Problem 1

20,2,5,25,9

The mean (average) of a set of numbers is the sum divided by the number of terms.

$x_{avg} = \frac{20+2+5+25+9}{5}$

Add 2 to 20 to get 22.

$x_{avg} = \frac{22+5+25+9}{5}$

Add 5 to 22 to get 27.

$x_{avg} = \frac{27+25+9}{5}$

Add 25 to 27 to get 52.

$x_{avg} = \frac{52+9}{5}$

Add 9 to 52 to get 61.

$x_{avg} = \frac{61}{5}$

Divide.

$x_{avg} = 12.2$

Problem 1 (Page 2)

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[20-12.2]^2+[2-12.2]^2+[5-12.2]^2+[25-12.2]^2+[9-12.2]^2}{5-1}}$$

Simplify the result.

$s=9.8843$

Approximate the result.

$s\approx 9.8843$

Problem 1

10,110,17,15,3,12

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{10+110+17+15+3+12}{6}$$

Add 110 to 10 to get 120.

$$x_{avg}=\frac{120+17+15+3+12}{6}$$

Add 17 to 120 to get 137.

$$x_{avg}=\frac{137+15+3+12}{6}$$

Add 15 to 137 to get 152.

$$x_{avg}=\frac{152+3+12}{6}$$

Add 3 to 152 to get 155.

$$x_{avg}=\frac{155+12}{6}$$

Add 12 to 155 to get 167.

$$x_{avg}=\frac{167}{6}$$

Problem 1 (Page 2)

Divide.

$x_{avg} = 27.8333$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s = \sum_{i=1}^{n} \sqrt{\frac{[x_i - x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s = \sqrt{\frac{[10-27.8333]^2+[110-27.8333]^2+[17-27.8333]^2+[15-27.8333]^2+[3-27.83}{6-1}}$$

Simplify the result.

$s = 40.5434$

Approximate the result.

$s \approx 40.5434$

Problem 1

16,14,4,14,7,12,17

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{16+14+4+14+7+12+17}{7}$$

Add 14 to 16 to get 30.

$$x_{avg}=\frac{30+4+14+7+12+17}{7}$$

Add 4 to 30 to get 34.

$$x_{avg}=\frac{34+14+7+12+17}{7}$$

Add 14 to 34 to get 48.

$$x_{avg}=\frac{48+7+12+17}{7}$$

Add 7 to 48 to get 55.

$$x_{avg}=\frac{55+12+17}{7}$$

Add 12 to 55 to get 67.

$$x_{avg}=\frac{67+17}{7}$$

Problem 1 (Page 2)

Add 17 to 67 to get 84.

$$x_{avg} = \frac{84}{7}$$

Reduce the expression $\frac{84}{7}$ by removing a factor of 7 from the numerator and denominator.

$$x_{avg} = 12$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s = \sum_{i=1}^{n} \sqrt{\frac{[x_i - x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s = \sqrt{\frac{[16-12]^2+[14-12]^2+[4-12]^2+[14-12]^2+[7-12]^2+[12-12]^2+[17-12]^2}{7-1}}$$

Simplify the result.

$$s = \sqrt{23}$$

Approximate the result.

$$s \approx 4.7958$$

Problem 1

9,19,18,5,20,9,29

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg} = \frac{9+19+18+5+20+9+29}{7}$$

Add 19 to 9 to get 28.

$$x_{avg} = \frac{28+18+5+20+9+29}{7}$$

Add 18 to 28 to get 46.

$$x_{avg} = \frac{46+5+20+9+29}{7}$$

Add 5 to 46 to get 51.

$$x_{avg} = \frac{51+20+9+29}{7}$$

Add 20 to 51 to get 71.

$$x_{avg} = \frac{71+9+29}{7}$$

Add 9 to 71 to get 80.

$$x_{avg} = \frac{80+29}{7}$$

Problem 1 (Page 2)

Add 29 to 80 to get 109.

$$x_{avg}=\frac{109}{7}$$

Divide.

$$x_{avg}=15.5714$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[9-15.5714]^2+[19-15.5714]^2+[18-15.5714]^2+[5-15.5714]^2+[20-15.5714]^2}{7-1}}$$

Simplify the result.

$$s=8.3238$$

Approximate the result.

$$s\approx 8.3238$$

Problem 1

13,26,326

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg}=\frac{13+26+326}{3}$$

Add 26 to 13 to get 39.

$$x_{avg}=\frac{39+326}{3}$$

Add 326 to 39 to get 365.

$$x_{avg}=\frac{365}{3}$$

Divide.

$$x_{avg}=121.6667$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s=\sum_{i=1}^{n}\sqrt{\frac{[x_i-x_{avg}]^2}{n-1}}$$

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[13-121.6667]^2+[26-121.6667]^2+[326-121.6667]^2}{3-1}}$$

Problem 1 (Page 2)

Simplify the result.

$s=177.0772$

Approximate the result.

$s\approx177.0772$

Problem 1

5,10,2,17,30,17,21,221,7

The mean (average) of a set of numbers is the sum divided by the number of terms.

$$x_{avg} = \frac{5+10+2+17+30+17+21+221+7}{9}$$

Add 10 to 5 to get 15.

$$x_{avg} = \frac{15+2+17+30+17+21+221+7}{9}$$

Add 2 to 15 to get 17.

$$x_{avg} = \frac{17+17+30+17+21+221+7}{9}$$

Add 17 to 17 to get 34.

$$x_{avg} = \frac{34+30+17+21+221+7}{9}$$

Add 30 to 34 to get 64.

$$x_{avg} = \frac{64+17+21+221+7}{9}$$

Add 17 to 64 to get 81.

$$x_{avg} = \frac{81+21+221+7}{9}$$

Problem 1 (Page 2)

Add 21 to 81 to get 102.

$$x_{avg} = \frac{102+221+7}{9}$$

Add 221 to 102 to get 323.

$$x_{avg} = \frac{323+7}{9}$$

Add 7 to 323 to get 330.

$$x_{avg} = \frac{330}{9}$$

Reduce the expression $\frac{330}{9}$ by removing a factor of 3 from the numerator and denominator.

$$x_{avg} = \frac{110}{3}$$

Divide.

$$x_{avg} = 36.6667$$

Setup the formula for standard deviation. The standard deviation of a set of values is a measure of the spread of its values.

$$s = \sum_{i=1}^{n} \sqrt{\frac{[x_i - x_{avg}]^2}{n-1}}$$

Problem 1 (Page 3)

Setup the formula for standard deviation for this set of numbers.

$$s=\sqrt{\frac{[5-36.6667]^2+[10-36.6667]^2+[2-36.6667]^2+[17-36.6667]^2+[30-36.6667]}{9-1}}$$

Simplify the result.

$s=69.676$

Approximate the result.

$s\approx 69.676$

Problem 1

$P(A)=0.54, P(B)=0.54$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.54+0.54$

Add 0.54 to 0.54 to get 1.08.

$P(A \text{ or } B)=1.08$

Problem 1

$P(A)=0.95, P(B)=0.95$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.95+0.95$

Add 0.95 to 0.95 to get 1.9.

$P(A \text{ or } B)=1.9$

Problem 1

$P(A)=0.34, P(B)=0.34$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.34+0.34$

Add 0.34 to 0.34 to get 0.68.

$P(A \text{ or } B)=0.68$

Problem 1

$P(A)=0.55, P(B)=0.55$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.55+0.55$

Add 0.55 to 0.55 to get 1.1.

$P(A \text{ or } B)=1.1$

Problem 1

$P(A)=0.74, P(B)=0.74$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.74+0.74$

Add 0.74 to 0.74 to get 1.48.

$P(A \text{ or } B)=1.48$

Problem 1

$P(A)=0.34, P(B)=0.34$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.34+0.34$

Add 0.34 to 0.34 to get 0.68.

$P(A \text{ or } B)=0.68$

Problem 1

$P(A)=0.74, P(B)=0.74$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.74+0.74$

Add 0.74 to 0.74 to get 1.48.

$P(A \text{ or } B)=1.48$

Problem 1

$P(A)=0.49, P(B)=0.49$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.49+0.49$

Add 0.49 to 0.49 to get 0.98.

$P(A \text{ or } B)=0.98$

Problem 1

$P(A)=1, P(B)=1$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=1+1$

Add 1 to 1 to get 2.

$P(A \text{ or } B)=2$

Problem 1

$P(A)=0.39, P(B)=0.39$

Use the addition rule of probabilities to find the probability of A or B occurring.

$P(A \text{ or } B)=P(A)+P(B)$

Fill in the known values.

$P(A \text{ or } B)=0.39+0.39$

Add 0.39 to 0.39 to get 0.78.

$P(A \text{ or } B)=0.78$

Problem 1

$_2C_2$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_2C_2 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{2!}{2!(2-2)!}$$

Cancel out the common factorial factors.

Problem 1

${}_9C_5$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_9C_5 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{9!}{5!(9-5)!}$$

Cancel out the common factorial factors.

$$\frac{9 \cdot 8 \cdot 7 \cdot 6}{4 \cdot 3 \cdot 2}$$

Cancel out the remaining common factors.

$$3 \cdot 7 \cdot 6$$

Multiply 3 by 7 to get 21.

$$21 \cdot 6$$

Multiply 21 by 6 to get 126.

$$126$$

Problem 1

${}_{5}C_{4}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$${}_{5}C_{4} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{5!}{4!(5-4)!}$$

Cancel out the common factorial factors.

5

Problem 1

${}_6C_2$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_6C_2 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{6!}{2!(6-2)!}$$

Cancel out the common factorial factors.

$$\frac{6 \cdot 5}{2}$$

Cancel out the remaining common factors.

$$3 \cdot 5$$

Multiply 3 by 5 to get 15.

$$15$$

Problem 1

$_6C_4$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_6C_4 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{6!}{4!(6-4)!}$$

Cancel out the common factorial factors.

$$\frac{6 \cdot 5}{2}$$

Cancel out the remaining common factors.

$$3 \cdot 5$$

Multiply 3 by 5 to get 15.

$$15$$

Problem 1

${}_{8}C_{3}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$${}_{8}C_{3} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{8!}{3!(8-3)!}$$

Cancel out the common factorial factors.

$$\frac{8 \cdot 7 \cdot 6}{3 \cdot 2}$$

Cancel out the remaining common factors.

$$4 \cdot 7 \cdot 2$$

Multiply 4 by 7 to get 28.

$$28 \cdot 2$$

Multiply 28 by 2 to get 56.

$$56$$

Problem 1

${}_{9}C_{7}$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_{9}C_{7} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{9!}{7!(9-7)!}$$

Cancel out the common factorial factors.

$$\frac{9 \cdot 8}{2}$$

Cancel out the remaining common factors.

$$9 \cdot 4$$

Multiply 9 by 4 to get 36.

$$36$$

Problem 1

$_{9}C_{8}$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_{9}C_{8} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{9!}{8!(9-8)!}$$

Cancel out the common factorial factors.

9

Problem 1

$_9C_3$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_9C_3 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{9!}{3!(9-3)!}$$

Cancel out the common factorial factors.

$$\frac{9 \cdot 8 \cdot 7}{3 \cdot 2}$$

Cancel out the remaining common factors.

$$3 \cdot 4 \cdot 7$$

Multiply 3 by 4 to get 12.

$$12 \cdot 7$$

Multiply 12 by 7 to get 84.

$$84$$

Problem 1

$_{15}C_4$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_{15}C_4 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{15!}{4!(15-4)!}$$

Cancel out the common factorial factors.

$$\frac{15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5}{11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2}$$

Cancel out the remaining common factors.

$$\frac{13 \cdot 2 \cdot 7 \cdot 6 \cdot 5}{4}$$

Multiply 13 by 2 to get 26.

$$\frac{26 \cdot 7 \cdot 6 \cdot 5}{4}$$

Multiply 26 by 7 to get 182.

$$\frac{182 \cdot 6 \cdot 5}{4}$$

Problem 1 (Page 2)

Multiply 182 by 6 to get 1092.

$$\frac{1092\cdot 5}{4}$$

Multiply 1092 by 5 to get 5460.

$$\frac{5460}{4}$$

Reduce the expression $\frac{5460}{4}$ by removing a factor of 4 from the numerator and denominator.

$$1365$$

Problem 1

${}_{6}C_{8}$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_{6}C_{8} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Since $r>n$, it is impossible to select 8 items from a total of only 6 possible items.

0

Problem 1

${}_{0}C_{0}$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_{0}C_{0} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{0!}{0!(0-0)!}$$

Cancel out the common factorial factors.

Problem 1

$_{1}C_{1}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$$_{1}C_{1} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{1!}{1!(1-1)!}$$

Cancel out the common factorial factors.

Problem 1

$_{1}C_{0}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$$_{1}C_{0} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{1!}{0!(1-0)!}$$

Cancel out the common factorial factors.

Problem 1

${}_{0}C_{1}$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_{0}C_{1} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Since r>n, it is impossible to select 1 items from a total of only 0 possible items.

0

Problem 1

$_5C_0$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_5C_0 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{5!}{0!(5-0)!}$$

Cancel out the common factorial factors.

Problem 1

$_{18}C_{0}$

Find the number of possible unordered combinations when r items are selected from n available items.

$${}_{18}C_{0} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{18!}{0!(18-0)!}$$

Cancel out the common factorial factors.

Problem 1

$_{1}C_{1}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$$_{1}C_{1} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{1!}{1!(1-1)!}$$

Cancel out the common factorial factors.

Problem 1

$_{20}C_{20}$

Find the number of possible unordered combinations when **r** items are selected from **n** available items.

$$_{20}C_{20} = {}_{n}C_{r} = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{20!}{20!(20-20)!}$$

Cancel out the common factorial factors.

Problem 1

$_{18}C_7$

Find the number of possible unordered combinations when r items are selected from n available items.

$$_{18}C_7 = {}_nC_r = \frac{n!}{r!(n-r)!}$$

Fill in the known values.

$$\frac{18!}{7!(18-7)!}$$

Cancel out the common factorial factors.

$$\frac{18 \cdot 17 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8}{11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2}$$

Cancel out the remaining common factors.

$$17 \cdot 2 \cdot 2 \cdot 13 \cdot 2 \cdot 9 \cdot 2$$

Multiply 17 by 2 to get 34.

$$34 \cdot 2 \cdot 13 \cdot 2 \cdot 9 \cdot 2$$

Multiply 34 by 2 to get 68.

$$68 \cdot 13 \cdot 2 \cdot 9 \cdot 2$$

Multiply 68 by 13 to get 884.

Problem 1 (Page 2)

$884\cdot2\cdot9\cdot2$

Multiply 884 by 2 to get 1768.

$1768\cdot9\cdot2$

Multiply 1768 by 9 to get 15912.

$15912\cdot2$

Multiply 15912 by 2 to get 31824.

31824

Problem 1

$P(A) = 0.61, P(B) = 0.61$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A \mid B) = P(A) \cdot \frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A \mid B) = \frac{0.61 \cdot 0.61}{0.61}$$

Simplify the expression.

$$P(A \mid B) = 0.61$$

Problem 1

$P(A)=0.52, P(B)=0.52$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A \mid B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A \mid B)=\frac{0.52\cdot 0.52}{0.52}$$

Simplify the expression.

$$P(A \mid B)=0.52$$

Problem 1

$P(A)=0.35, P(B)=0.35$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.35\cdot 0.35}{0.35}$$

Simplify the expression.

$$P(A|B)=0.35$$

Problem 1

$P(A)=0.16, P(B)=0.75$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.16\cdot 0.75}{0.16}$$

Simplify the expression.

$$P(A|B)=0.75$$

Problem 1

$P(A)=0.38, P(B)=0.98$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.38\cdot 0.98}{0.38}$$

Simplify the expression.

$$P(A|B)=0.98$$

Problem 1

$P(A)=0.70, P(B)=0.78$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A\mid B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A\mid B)=\frac{0.7\cdot 0.78}{0.7}$$

Simplify the expression.

$$P(A\mid B)=0.78$$

Problem 1

$P(A)=0.25, P(B)=0.75$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.25\cdot0.75}{0.25}$$

Simplify the expression.

$$P(A|B)=0.75$$

Problem 1

$P(A) = 1.0, P(B) = 0.37$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A \mid B) = P(A) \cdot \frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A \mid B) = \frac{1 \cdot 0.37}{1}$$

Simplify the expression.

$P(A \mid B) = 0.37$

Problem 1

$P(A)=0.91, P(B)=0.01$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.91\cdot0.01}{0.91}$$

Simplify the expression.

$$P(A|B)=0.01$$

Problem 1

$P(A)=0.31, P(B)=1$

The conditional probability is the probability of both events occurring divided by the probability of the first event occurring.

$$P(A|B)=P(A)\cdot\frac{P(B)}{P(A)}$$

Fill in the known values.

$$P(A|B)=\frac{0.31\cdot 1}{0.31}$$

Simplify the expression.

$$P(A|B)=1$$

Problem 1

$_{0}P_{2}$

Find the number of possible ordered permutations when r items are selected from n available items.

$$_{0}P_{2} = {}_{n}P_{r} = \frac{n!}{n-r!}$$

Since r>n, it is impossible to select 2 items from a total of only 0 possible items.

0

Problem 1

$_{10}P_8$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{10}P_8 = {_nP_r} = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{10!}{(10-8)!}$

Cancel out the common factorial factors.

$10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 10 by 9 to get 90.

$90 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 90 by 8 to get 720.

$720 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 720 by 7 to get 5040.

$5040 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 5040 by 6 to get 30240.

$30240 \cdot 5 \cdot 4 \cdot 3$

Problem 1 (Page 2)

Multiply 30240 by 5 to get 151200.

$151200\cdot 4\cdot 3$

Multiply 151200 by 4 to get 604800.

$604800\cdot 3$

Multiply 604800 by 3 to get 1814400.

1814400

Problem 1

${}_4P_2$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_4P_2 = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{4!}{(4-2)!}$$

Cancel out the common factorial factors.

$4 \cdot 3$

Multiply 4 by 3 to get 12.

12

Problem 1

$_4P_3$

Find the number of possible ordered permutations when r items are selected from n available items.

$_4P_3 = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{4!}{(4-3)!}$

Cancel out the common factorial factors.

$4 \cdot 3 \cdot 2$

Multiply 4 by 3 to get 12.

$12 \cdot 2$

Multiply 12 by 2 to get 24.

24

Problem 1

$_5P_3$

Find the number of possible ordered permutations when r items are selected from n available items.

$_5P_3 = {_nP_r} = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{5!}{(5-3)!}$

Cancel out the common factorial factors.

$5 \cdot 4 \cdot 3$

Multiply 5 by 4 to get 20.

$20 \cdot 3$

Multiply 20 by 3 to get 60.

60

Problem 1

$_{13}P_4$

Find the number of possible ordered permutations when r items are selected from n available items.

$$_{13}P_4 = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{13!}{(13-4)!}$$

Cancel out the common factorial factors.

$$13 \cdot 12 \cdot 11 \cdot 10$$

Multiply 13 by 12 to get 156.

$$156 \cdot 11 \cdot 10$$

Multiply 156 by 11 to get 1716.

$$1716 \cdot 10$$

Multiply 1716 by 10 to get 17160.

$$17160$$

Problem 1

${}_6P_5$

Find the number of possible ordered permutations when r items are selected from n available items.

${}_6P_5 = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{6!}{(6-5)!}$

Cancel out the common factorial factors.

$6 \cdot 5 \cdot 4 \cdot 3 \cdot 2$

Multiply 6 by 5 to get 30.

$30 \cdot 4 \cdot 3 \cdot 2$

Multiply 30 by 4 to get 120.

$120 \cdot 3 \cdot 2$

Multiply 120 by 3 to get 360.

$360 \cdot 2$

Multiply 360 by 2 to get 720.

720

Problem 1

$_{15}P_{13}$

Find the number of possible ordered permutations when r items are selected from n available items.

$$_{15}P_{13} = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{15!}{(15-13)!}$$

Cancel out the common factorial factors.

$$15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 15 by 14 to get 210.

$$210 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 210 by 13 to get 2730.

$$2730 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 2730 by 12 to get 32760.

$$32760 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 32760 by 11 to get 360360.

$$360360 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Problem 1 (Page 2)

Multiply 360360 by 10 to get 3603600.
$3603600 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 3603600 by 9 to get 32432400.
$32432400 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 32432400 by 8 to get 259459200.
$259459200 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 259459200 by 7 to get 1816214400.
$1816214400 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 1816214400 by 6 to get 10897286400.
$10897286400 \cdot 5 \cdot 4 \cdot 3$

Multiply 10897286400 by 5 to get 54486432000.
$54486432000 \cdot 4 \cdot 3$

Multiply 54486432000 by 4 to get 217945728000.
$217945728000 \cdot 3$

Multiply 217945728000 by 3 to get 653837184000.
653837184000

Problem 1

$_{16}P_{8}$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{16}P_{8} = {}_{n}P_{r} = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{16!}{(16-8)!}$

Cancel out the common factorial factors.

$16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9$

Multiply 16 by 15 to get 240.

$240 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9$

Multiply 240 by 14 to get 3360.

$3360 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9$

Multiply 3360 by 13 to get 43680.

$43680 \cdot 12 \cdot 11 \cdot 10 \cdot 9$

Multiply 43680 by 12 to get 524160.

$524160 \cdot 11 \cdot 10 \cdot 9$

Problem 1 (Page 2)

Multiply 524160 by 11 to get 5765760.

$5765760 \cdot 10 \cdot 9$

Multiply 5765760 by 10 to get 57657600.

$57657600 \cdot 9$

Multiply 57657600 by 9 to get 518918400.

518918400

Problem 1

$_{10}P_5$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{10}P_5 = {_nP_r} = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{10!}{(10-5)!}$

Cancel out the common factorial factors.

$10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$

Multiply 10 by 9 to get 90.

$90 \cdot 8 \cdot 7 \cdot 6$

Multiply 90 by 8 to get 720.

$720 \cdot 7 \cdot 6$

Multiply 720 by 7 to get 5040.

$5040 \cdot 6$

Multiply 5040 by 6 to get 30240.

30240

Problem 1

$_{9}P_{0}$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{9}P_{0} = {}_{n}P_{r} = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{9!}{(9-0)!}$

Cancel out the common factorial factors.

Problem 1

${}_9P_9$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_9P_9 = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{9!}{(9-9)!}$$

Cancel out the common factorial factors.

$9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Multiply 9 by 8 to get 72.

$72 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Multiply 72 by 7 to get 504.

$504 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Multiply 504 by 6 to get 3024.

$3024 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Multiply 3024 by 5 to get 15120.

$15120 \cdot 4 \cdot 3 \cdot 2 \cdot 1$

Problem 1 (Page 2)

Multiply 15120 by 4 to get 60480.

$60480 \cdot 3 \cdot 2 \cdot 1$

Multiply 60480 by 3 to get 181440.

$181440 \cdot 2 \cdot 1$

Multiply 181440 by 2 to get 362880.

$362880 \cdot 1$

Multiply 362880 by 1 to get 362880.

362880

Problem 1

${}_6P_2$

Find the number of possible ordered permutations when r items are selected from n available items.

${}_6P_2 = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{6!}{(6-2)!}$

Cancel out the common factorial factors.

$6 \cdot 5$

Multiply 6 by 5 to get 30.

30

Problem 1

$_{16}P_{14}$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{16}P_{14} = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{16!}{(16-14)!}$

Cancel out the common factorial factors.

$16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 16 by 15 to get 240.

$240 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 240 by 14 to get 3360.

$3360 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 3360 by 13 to get 43680.

$43680 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 43680 by 12 to get 524160.

$524160 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Problem 1 (Page 2)

Multiply 524160 by 11 to get 5765760.

$5765760 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 5765760 by 10 to get 57657600.

$57657600 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 57657600 by 9 to get 518918400.

$518918400 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 518918400 by 8 to get 4151347200.

$4151347200 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 4151347200 by 7 to get 29059430400.

$29059430400 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 29059430400 by 6 to get 174356582400.

$174356582400 \cdot 5 \cdot 4 \cdot 3$

Multiply 174356582400 by 5 to get 871782912000.

$871782912000 \cdot 4 \cdot 3$

Multiply 871782912000 by 4 to get 3487131648000.

$3487131648000 \cdot 3$

Problem 1 (Page 3)

Multiply 3487131648000 by 3 to get 10461394944000.

10461394944000

Problem 1

${}_{14}P_{12}$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_{14}P_{12} = {}_{n}P_{r} = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{14!}{(14-12)!}$$

Cancel out the common factorial factors.

$$14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 14 by 13 to get 182.

$$182 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 182 by 12 to get 2184.

$$2184 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 2184 by 11 to get 24024.

$$24024 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Multiply 24024 by 10 to get 240240.

$$240240 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$$

Problem 1 (Page 2)

Multiply 240240 by 9 to get 2162160.

2162160·8·7·6·5·4·3

Multiply 2162160 by 8 to get 17297280.

17297280·7·6·5·4·3

Multiply 17297280 by 7 to get 121080960.

121080960·6·5·4·3

Multiply 121080960 by 6 to get 726485760.

726485760·5·4·3

Multiply 726485760 by 5 to get 3632428800.

3632428800·4·3

Multiply 3632428800 by 4 to get 14529715200.

14529715200·3

Multiply 14529715200 by 3 to get 43589145600.

43589145600

Problem 1

${}_{12}P_7$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_{12}P_7 = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{12!}{(12-7)!}$$

Cancel out the common factorial factors.

$12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$

Multiply 12 by 11 to get 132.

$132 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$

Multiply 132 by 10 to get 1320.

$1320 \cdot 9 \cdot 8 \cdot 7 \cdot 6$

Multiply 1320 by 9 to get 11880.

$11880 \cdot 8 \cdot 7 \cdot 6$

Multiply 11880 by 8 to get 95040.

$95040 \cdot 7 \cdot 6$

Problem 1 (Page 2)

Multiply 95040 by 7 to get 665280.

$665280 \cdot 6$

Multiply 665280 by 6 to get 3991680.

3991680

Problem 1

${}_{17}P_4$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_{17}P_4 = {}_nP_r = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{17!}{(17-4)!}$$

Cancel out the common factorial factors.

$$17 \cdot 16 \cdot 15 \cdot 14$$

Multiply 17 by 16 to get 272.

$$272 \cdot 15 \cdot 14$$

Multiply 272 by 15 to get 4080.

$$4080 \cdot 14$$

Multiply 4080 by 14 to get 57120.

$$57120$$

Problem 1

$_{10}P_6$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{10}P_6 = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{10!}{(10-6)!}$

Cancel out the common factorial factors.

$10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5$

Multiply 10 by 9 to get 90.

$90 \cdot 8 \cdot 7 \cdot 6 \cdot 5$

Multiply 90 by 8 to get 720.

$720 \cdot 7 \cdot 6 \cdot 5$

Multiply 720 by 7 to get 5040.

$5040 \cdot 6 \cdot 5$

Multiply 5040 by 6 to get 30240.

$30240 \cdot 5$

Problem 1 (Page 2)

Multiply 30240 by 5 to get 151200.
151200

Problem 1

$_{10}P_8$

Find the number of possible ordered permutations when r items are selected from n available items.

$_{10}P_8 = {}_nP_r = \frac{n!}{n-r!}$

Fill in the known values.

$\frac{10!}{(10-8)!}$

Cancel out the common factorial factors.

$10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 10 by 9 to get 90.

$90 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 90 by 8 to get 720.

$720 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 720 by 7 to get 5040.

$5040 \cdot 6 \cdot 5 \cdot 4 \cdot 3$

Multiply 5040 by 6 to get 30240.

$30240 \cdot 5 \cdot 4 \cdot 3$

Problem 1 (Page 2)

Multiply 30240 by 5 to get 151200.

$151200\cdot 4\cdot 3$

Multiply 151200 by 4 to get 604800.

$604800\cdot 3$

Multiply 604800 by 3 to get 1814400.

1814400

Problem 1

${}_{20}P_{15}$

Find the number of possible ordered permutations when r items are selected from n available items.

$${}_{20}P_{15} = {}_{n}P_{r} = \frac{n!}{n-r!}$$

Fill in the known values.

$$\frac{20!}{(20-15)!}$$

Cancel out the common factorial factors.

$$20 \cdot 19 \cdot 18 \cdot 17 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$$

Multiply 20 by 19 to get 380.

$$380 \cdot 18 \cdot 17 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$$

Multiply 380 by 18 to get 6840.

$$6840 \cdot 17 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$$

Multiply 6840 by 17 to get 116280.

$$116280 \cdot 16 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$$

Multiply 116280 by 16 to get 1860480.

$$1860480 \cdot 15 \cdot 14 \cdot 13 \cdot 12 \cdot 11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6$$

Problem 1 (Page 2)

Multiply 1860480 by 15 to get 27907200.
27907200 · 14 · 13 · 12 · 11 · 10 · 9 · 8 · 7 · 6

Multiply 27907200 by 14 to get 390700800.
390700800 · 13 · 12 · 11 · 10 · 9 · 8 · 7 · 6

Multiply 390700800 by 13 to get 5079110400.
5079110400 · 12 · 11 · 10 · 9 · 8 · 7 · 6

Multiply 5079110400 by 12 to get 60949324800.
60949324800 · 11 · 10 · 9 · 8 · 7 · 6

Multiply 60949324800 by 11 to get 670442572800.
670442572800 · 10 · 9 · 8 · 7 · 6

Multiply 670442572800 by 10 to get 6704425728000.
6704425728000 · 9 · 8 · 7 · 6

Multiply 6704425728000 by 9 to get 60339831552000.
60339831552000 · 8 · 7 · 6

Multiply 60339831552000 by 8 to get 482718652416000.
482718652416000 · 7 · 6

Problem 1 (Page 3)

Multiply 482718652416000 by 7 to get $3.379 \cdot 10^{15}$.

$3.379 \cdot 10^{15} \cdot 6$

Multiply $3.379 \cdot 10^{15}$ by 6 to get $2.0274 \cdot 10^{16}$.

$2.0274 \cdot 10^{16}$

Problem 1

$P(A) = 0.47, P(B) = 0.47$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B) = P(A) \cdot P(B)$

Fill in the known values.

$P(A \text{ and } B) = 0.47 \cdot 0.47$

Multiply 0.47 by 0.47 to get 0.2209.

$P(A \text{ and } B) = 0.2209$

Problem 1

$P(A)=0.4, P(B)=0.4$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B)=P(A)\cdot P(B)$

Fill in the known values.

$P(A \text{ and } B)=0.4\cdot 0.4$

Multiply 0.4 by 0.4 to get 0.16.

$P(A \text{ and } B)=0.16$

Problem 1

$P(A)=0.47, P(B)=0.47$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B)=P(A)\cdot P(B)$

Fill in the known values.

$P(A \text{ and } B)=0.47\cdot 0.47$

Multiply 0.47 by 0.47 to get 0.2209.

$P(A \text{ and } B)=0.2209$

Problem 1

$P(A) = 0.7, P(B) = 0.49$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B) = P(A) \cdot P(B)$

Fill in the known values.

$P(A \text{ and } B) = 0.7 \cdot 0.49$

Multiply 0.7 by 0.49 to get 0.343.

$P(A \text{ and } B) = 0.343$

Problem 1

$P(A) = 0.55, P(B) = 0.46$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B) = P(A) \cdot P(B)$

Fill in the known values.

$P(A \text{ and } B) = 0.55 \cdot 0.46$

Multiply 0.55 by 0.46 to get 0.253.

$P(A \text{ and } B) = 0.253$

Problem 1

$P(A)=1, P(B)=0.56$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B)=P(A)\cdot P(B)$

Fill in the known values.

$P(A \text{ and } B)=1\cdot 0.56$

Multiply 1 by 0.56 to get 0.56.

$P(A \text{ and } B)=0.56$

Problem 1

$P(A) = 0.5, P(B) = 0.5$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B) = P(A) \cdot P(B)$

Fill in the known values.

$P(A \text{ and } B) = 0.5 \cdot 0.5$

Multiply 0.5 by 0.5 to get 0.25.

$P(A \text{ and } B) = 0.25$

Problem 1

$P(A)=0, P(B)=1$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B)=P(A)\cdot P(B)$

Fill in the known values.

$P(A \text{ and } B)=0\cdot 1$

Multiply 0 by 1 to get 0.

$P(A \text{ and } B)=0$

Problem 1

$P(A) = 0.9, P(B) = 0.9$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B) = P(A) \cdot P(B)$

Fill in the known values.

$P(A \text{ and } B) = 0.9 \cdot 0.9$

Multiply 0.9 by 0.9 to get 0.81.

$P(A \text{ and } B) = 0.81$

Problem 1

$P(A)=0.35, P(B)=0.95$

Use the multiplication rule of probabilities to find the probability of A and B occurring.

$P(A \text{ and } B)=P(A)\cdot P(B)$

Fill in the known values.

$P(A \text{ and } B)=0.35\cdot 0.95$

Multiply 0.35 by 0.95 to get 0.3325.

$P(A \text{ and } B)=0.3325$

Problem 1

x	P(x)
5	0.1
6	0.2
7	0.3
9	0.2
13	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=5\cdot 0.1+6\cdot 0.2+7\cdot 0.3+9\cdot 0.2+13\cdot 0.2$

Multiply 5 by 0.1 to get 0.5.

$E=0.5+6\cdot 0.2+7\cdot 0.3+9\cdot 0.2+13\cdot 0.2$

Multiply 6 by 0.2 to get 1.2.

$E=0.5+1.2+7\cdot 0.3+9\cdot 0.2+13\cdot 0.2$

Multiply 7 by 0.3 to get 2.1.

$E=0.5+1.2+2.1+9\cdot 0.2+13\cdot 0.2$

Multiply 9 by 0.2 to get 1.8.

$E=0.5+1.2+2.1+1.8+13\cdot 0.2$

Problem 1 (Page 2)

Multiply 13 by 0.2 to get 2.6.
$E=0.5+1.2+2.1+1.8+2.6$

Add 1.2 to 0.5 to get 1.7.
$E=1.7+2.1+1.8+2.6$

Add 2.1 to 1.7 to get 3.8.
$E=3.8+1.8+2.6$

Add 1.8 to 3.8 to get 5.6.
$E=5.6+2.6$

Add 2.6 to 5.6 to get 8.2.
$E=8.2$

Problem 1

x	P(x)
5	0.1
11	0.3
18	0.3
21	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E = 5 \cdot 0.1 + 11 \cdot 0.3 + 18 \cdot 0.3 + 21 \cdot 0.3$

Multiply 5 by 0.1 to get 0.5.

$E = 0.5 + 11 \cdot 0.3 + 18 \cdot 0.3 + 21 \cdot 0.3$

Multiply 11 by 0.3 to get 3.3.

$E = 0.5 + 3.3 + 18 \cdot 0.3 + 21 \cdot 0.3$

Multiply 18 by 0.3 to get 5.4.

$E = 0.5 + 3.3 + 5.4 + 21 \cdot 0.3$

Multiply 21 by 0.3 to get 6.3.

$E = 0.5 + 3.3 + 5.4 + 6.3$

Problem 1 (Page 2)

Add 3.3 to 0.5 to get 3.8.

E=3.8+5.4+6.3

Add 5.4 to 3.8 to get 9.2.

E=9.2+6.3

Add 6.3 to 9.2 to get 15.5.

E=15.5

Problem 1

x	P(x)
15	0.2
19	0.3
24	0.2
28	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=15\cdot 0.2+19\cdot 0.3+24\cdot 0.2+28\cdot 0.3$

Multiply 15 by 0.2 to get 3.

$E=3+19\cdot 0.3+24\cdot 0.2+28\cdot 0.3$

Multiply 19 by 0.3 to get 5.7.

$E=3+5.7+24\cdot 0.2+28\cdot 0.3$

Multiply 24 by 0.2 to get 4.8.

$E=3+5.7+4.8+28\cdot 0.3$

Multiply 28 by 0.3 to get 8.4.

$E=3+5.7+4.8+8.4$

Problem 1 (Page 2)

Add 5.7 to 3 to get 8.7.

$E = 8.7 + 4.8 + 8.4$

Add 4.8 to 8.7 to get 13.5.

$E = 13.5 + 8.4$

Add 8.4 to 13.5 to get 21.9.

$E = 21.9$

Problem 1

x	P(x)
6	0.4
15	0.4
18	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=6\cdot 0.4+15\cdot 0.4+18\cdot 0.3$

Multiply 6 by 0.4 to get 2.4.

$E=2.4+15\cdot 0.4+18\cdot 0.3$

Multiply 15 by 0.4 to get 6.

$E=2.4+6+18\cdot 0.3$

Multiply 18 by 0.3 to get 5.4.

$E=2.4+6+5.4$

Add 6 to 2.4 to get 8.4.

$E=8.4+5.4$

Add 5.4 to 8.4 to get 13.8.

$E=13.8$

Problem 1

x	P(x)
1	0.3
7	0.3
14	0.2
19	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=1\cdot 0.3+7\cdot 0.3+14\cdot 0.2+19\cdot 0.2$

Multiply 1 by 0.3 to get 0.3.

$E=0.3+7\cdot 0.3+14\cdot 0.2+19\cdot 0.2$

Multiply 7 by 0.3 to get 2.1.

$E=0.3+2.1+14\cdot 0.2+19\cdot 0.2$

Multiply 14 by 0.2 to get 2.8.

$E=0.3+2.1+2.8+19\cdot 0.2$

Multiply 19 by 0.2 to get 3.8.

$E=0.3+2.1+2.8+3.8$

Problem 1 (Page 2)

Add 2.1 to 0.3 to get 2.4.

E = 2.4 + 2.8 + 3.8

Add 2.8 to 2.4 to get 5.2.

E = 5.2 + 3.8

Add 3.8 to 5.2 to get 9.

E = 9

Problem 1

x	P(x)
11	0.2
20	0.4
32	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=11\cdot 0.2+20\cdot 0.4+32\cdot 0.3$

Multiply 11 by 0.2 to get 2.2.

$E=2.2+20\cdot 0.4+32\cdot 0.3$

Multiply 20 by 0.4 to get 8.

$E=2.2+8+32\cdot 0.3$

Multiply 32 by 0.3 to get 9.6.

$E=2.2+8+9.6$

Add 8 to 2.2 to get 10.2.

$E=10.2+9.6$

Add 9.6 to 10.2 to get 19.8.

$E=19.8$

Problem 1 (Page 3)

3.527

Problem 1

x	P(x)
26	0.3
30	0.2
36	0.1
47	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E = 26 \cdot 0.3 + 30 \cdot 0.2 + 36 \cdot 0.1 + 47 \cdot 0.3$

Multiply 26 by 0.3 to get 7.8.

$E = 7.8 + 30 \cdot 0.2 + 36 \cdot 0.1 + 47 \cdot 0.3$

Multiply 30 by 0.2 to get 6.

$E = 7.8 + 6 + 36 \cdot 0.1 + 47 \cdot 0.3$

Multiply 36 by 0.1 to get 3.6.

$E = 7.8 + 6 + 3.6 + 47 \cdot 0.3$

Multiply 47 by 0.3 to get 14.1.

$E = 7.8 + 6 + 3.6 + 14.1$

Problem 1 (Page 2)

Add 6 to 7.8 to get 13.8.

E=13.8+3.6+14.1

Add 3.6 to 13.8 to get 17.4.

E=17.4+14.1

Add 14.1 to 17.4 to get 31.5.

E=31.5

Problem 1

x	P(x)
30	0.1
32	0.3
35	0.4
42	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=30\cdot 0.1+32\cdot 0.3+35\cdot 0.4+42\cdot 0.2$

Multiply 30 by 0.1 to get 3.

$E=3+32\cdot 0.3+35\cdot 0.4+42\cdot 0.2$

Multiply 32 by 0.3 to get 9.6.

$E=3+9.6+35\cdot 0.4+42\cdot 0.2$

Multiply 35 by 0.4 to get 14.

$E=3+9.6+14+42\cdot 0.2$

Multiply 42 by 0.2 to get 8.4.

$E=3+9.6+14+8.4$

Problem 1 (Page 2)

Add 9.6 to 3 to get 12.6.

$E=12.6+14+8.4$

Add 14 to 12.6 to get 26.6.

$E=26.6+8.4$

Add 8.4 to 26.6 to get 35.

$E=35$

Problem 1

x	P(x)
8	0.3
18	0.1
23	0.3
26	0.4

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=8\cdot0.3+18\cdot0.1+23\cdot0.3+26\cdot0.4$

Multiply 8 by 0.3 to get 2.4.

$E=2.4+18\cdot0.1+23\cdot0.3+26\cdot0.4$

Multiply 18 by 0.1 to get 1.8.

$E=2.4+1.8+23\cdot0.3+26\cdot0.4$

Multiply 23 by 0.3 to get 6.9.

$E=2.4+1.8+6.9+26\cdot0.4$

Multiply 26 by 0.4 to get 10.4.

$E=2.4+1.8+6.9+10.4$

Problem 1 (Page 2)

Add 1.8 to 2.4 to get 4.2.
E=4.2+6.9+10.4

Add 6.9 to 4.2 to get 11.1.
E=11.1+10.4

Add 10.4 to 11.1 to get 21.5.
E=21.5

Problem 1

x	P(x)
14	0.2
21	0.1
24	0.4
29	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$E=14\cdot0.2+21\cdot0.1+24\cdot0.4+29\cdot0.3$

Multiply 14 by 0.2 to get 2.8.

$E=2.8+21\cdot0.1+24\cdot0.4+29\cdot0.3$

Multiply 21 by 0.1 to get 2.1.

$E=2.8+2.1+24\cdot0.4+29\cdot0.3$

Multiply 24 by 0.4 to get 9.6.

$E=2.8+2.1+9.6+29\cdot0.3$

Multiply 29 by 0.3 to get 8.7.

$E=2.8+2.1+9.6+8.7$

Problem 1 (Page 2)

Add 2.1 to 2.8 to get 4.9.

E=4.9+9.6+8.7

Add 9.6 to 4.9 to get 14.5.

E=14.5+8.7

Add 8.7 to 14.5 to get 23.2.

E=23.2

Problem 1

x	P(x)
14	0.1
23	0.2
25	0.3
30	0.2
34	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=14\cdot 0.1+23\cdot 0.2+25\cdot 0.3+30\cdot 0.2+34\cdot 0.2$

Multiply 14 by 0.1 to get 1.4.

$u=E=1.4+23\cdot 0.2+25\cdot 0.3+30\cdot 0.2+34\cdot 0.2$

Multiply 23 by 0.2 to get 4.6.

$u=E=1.4+4.6+25\cdot 0.3+30\cdot 0.2+34\cdot 0.2$

Multiply 25 by 0.3 to get 7.5.

$u=E=1.4+4.6+7.5+30\cdot 0.2+34\cdot 0.2$

Multiply 30 by 0.2 to get 6.

$u=E=1.4+4.6+7.5+6+34\cdot 0.2$

Problem 1 (Page 2)

Multiply 34 by 0.2 to get 6.8.

$u=E=1.4+4.6+7.5+6+6.8$

Add 4.6 to 1.4 to get 6.

$u=E=6+7.5+6+6.8$

Add 7.5 to 6 to get 13.5.

$u=E=13.5+6+6.8$

Add 6 to 13.5 to get 19.5.

$u=E=19.5+6.8$

Add 6.8 to 19.5 to get 26.3.

$u=E=26.3$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum(x-u)^2\cdot P(x)}$$

Fill in the known values.

$$\sqrt{(14-(26.3))^2\cdot 0.1+(23-(26.3))^2\cdot 0.2+(25-(26.3))^2\cdot 0.3+(30-(26.3))^2\cdot 0.2+}$$

Simplify the expression.

Problem 1 (Page 3)

5.693

Problem 1

x	P(x)
14	0.2
22	0.3
27	0.1
31	0.1
39	0.2
41	0.1

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 14 \cdot 0.2 + 22 \cdot 0.3 + 27 \cdot 0.1 + 31 \cdot 0.1 + 39 \cdot 0.2 + 41 \cdot 0.1$

Multiply 14 by 0.2 to get 2.8.

$u = E = 2.8 + 22 \cdot 0.3 + 27 \cdot 0.1 + 31 \cdot 0.1 + 39 \cdot 0.2 + 41 \cdot 0.1$

Multiply 22 by 0.3 to get 6.6.

$u = E = 2.8 + 6.6 + 27 \cdot 0.1 + 31 \cdot 0.1 + 39 \cdot 0.2 + 41 \cdot 0.1$

Multiply 27 by 0.1 to get 2.7.

$u = E = 2.8 + 6.6 + 2.7 + 31 \cdot 0.1 + 39 \cdot 0.2 + 41 \cdot 0.1$

Multiply 31 by 0.1 to get 3.1.

Problem 1 (Page 2)

$u=E=2.8+6.6+2.7+3.1+39\cdot 0.2+41\cdot 0.1$

Multiply 39 by 0.2 to get 7.8.

$u=E=2.8+6.6+2.7+3.1+7.8+41\cdot 0.1$

Multiply 41 by 0.1 to get 4.1.

$u=E=2.8+6.6+2.7+3.1+7.8+4.1$

Add 6.6 to 2.8 to get 9.4.

$u=E=9.4+2.7+3.1+7.8+4.1$

Add 2.7 to 9.4 to get 12.1.

$u=E=12.1+3.1+7.8+4.1$

Add 3.1 to 12.1 to get 15.2.

$u=E=15.2+7.8+4.1$

Add 7.8 to 15.2 to get 23.

$u=E=23+4.1$

Add 4.1 to 23 to get 27.1.

$u=E=27.1$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

Problem 1 (Page 3)

$s = \sqrt{\sum (x-u)^2 \cdot P(x)}$

Fill in the known values.

$\sqrt{(14-(27.1))^2 \cdot 0.2+(22-(27.1))^2 \cdot 0.3+(27-(27.1))^2 \cdot 0.1+(31-(27.1))^2 \cdot 0.1+(}$

Simplify the expression.

9.5546

Problem 1

x	P(x)
10	0.4
13	0.3
15	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=10\cdot 0.4+13\cdot 0.3+15\cdot 0.3$

Multiply 10 by 0.4 to get 4.

$u=E=4+13\cdot 0.3+15\cdot 0.3$

Multiply 13 by 0.3 to get 3.9.

$u=E=4+3.9+15\cdot 0.3$

Multiply 15 by 0.3 to get 4.5.

$u=E=4+3.9+4.5$

Add 3.9 to 4 to get 7.9.

$u=E=7.9+4.5$

Add 4.5 to 7.9 to get 12.4.

$u=E=12.4$

Problem 1 (Page 2)

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(10-(12.4))^2 \cdot 0.4+(13-(12.4))^2 \cdot 0.3+(15-(12.4))^2 \cdot 0.3}$$

Simplify the expression.

2.1071

Problem 1

x	P(x)
1	0.1
4	0.3
6	0.2
10	0.2
15	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 1\cdot 0.1 + 4\cdot 0.3 + 6\cdot 0.2 + 10\cdot 0.2 + 15\cdot 0.2$

Multiply 1 by 0.1 to get 0.1.

$u = E = 0.1 + 4\cdot 0.3 + 6\cdot 0.2 + 10\cdot 0.2 + 15\cdot 0.2$

Multiply 4 by 0.3 to get 1.2.

$u = E = 0.1 + 1.2 + 6\cdot 0.2 + 10\cdot 0.2 + 15\cdot 0.2$

Multiply 6 by 0.2 to get 1.2.

$u = E = 0.1 + 1.2 + 1.2 + 10\cdot 0.2 + 15\cdot 0.2$

Multiply 10 by 0.2 to get 2.

$u = E = 0.1 + 1.2 + 1.2 + 2 + 15\cdot 0.2$

Problem 1 (Page 2)

Multiply 15 by 0.2 to get 3.

$u=E=0.1+1.2+1.2+2+3$

Add 1.2 to 0.1 to get 1.3.

$u=E=1.3+1.2+2+3$

Add 1.2 to 1.3 to get 2.5.

$u=E=2.5+2+3$

Add 2 to 2.5 to get 4.5.

$u=E=4.5+3$

Add 3 to 4.5 to get 7.5.

$u=E=7.5$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(1-(7.5))^2 \cdot 0.1+(4-(7.5))^2 \cdot 0.3+(6-(7.5))^2 \cdot 0.2+(10-(7.5))^2 \cdot 0.2+(15-(7.5)}$$

Simplify the expression.

Problem 1 (Page 3)

4.5662

Problem 1

x	P(x)
28	0.1
41	0.3
51	0.2
57	0.1
68	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=28\cdot 0.1+41\cdot 0.3+51\cdot 0.2+57\cdot 0.1+68\cdot 0.3$

Multiply 28 by 0.1 to get 2.8.

$u=E=2.8+41\cdot 0.3+51\cdot 0.2+57\cdot 0.1+68\cdot 0.3$

Multiply 41 by 0.3 to get 12.3.

$u=E=2.8+12.3+51\cdot 0.2+57\cdot 0.1+68\cdot 0.3$

Multiply 51 by 0.2 to get 10.2.

$u=E=2.8+12.3+10.2+57\cdot 0.1+68\cdot 0.3$

Multiply 57 by 0.1 to get 5.7.

$u=E=2.8+12.3+10.2+5.7+68\cdot 0.3$

Problem 1 (Page 2)

Multiply 68 by 0.3 to get 20.4.

$u=E=2.8+12.3+10.2+5.7+20.4$

Add 12.3 to 2.8 to get 15.1.

$u=E=15.1+10.2+5.7+20.4$

Add 10.2 to 15.1 to get 25.3.

$u=E=25.3+5.7+20.4$

Add 5.7 to 25.3 to get 31.

$u=E=31+20.4$

Add 20.4 to 31 to get 51.4.

$u=E=51.4$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$\sqrt{(28-(51.4))^2 \cdot 0.1+(41-(51.4))^2 \cdot 0.3+(51-(51.4))^2 \cdot 0.2+(57-(51.4))^2 \cdot 0.1+(}$

Simplify the expression.

Problem 1 (Page 3)

13.1545

Problem 1

x	P(x)
8	0.4
9	0.3
13	0.1
16	0.1
18	0.1

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=8\cdot 0.4+9\cdot 0.3+13\cdot 0.1+16\cdot 0.1+18\cdot 0.1$

Multiply 8 by 0.4 to get 3.2.

$u=E=3.2+9\cdot 0.3+13\cdot 0.1+16\cdot 0.1+18\cdot 0.1$

Multiply 9 by 0.3 to get 2.7.

$u=E=3.2+2.7+13\cdot 0.1+16\cdot 0.1+18\cdot 0.1$

Multiply 13 by 0.1 to get 1.3.

$u=E=3.2+2.7+1.3+16\cdot 0.1+18\cdot 0.1$

Multiply 16 by 0.1 to get 1.6.

$u=E=3.2+2.7+1.3+1.6+18\cdot 0.1$

Problem 1 (Page 2)

Multiply 18 by 0.1 to get 1.8.

$u = E = 3.2 + 2.7 + 1.3 + 1.6 + 1.8$

Add 2.7 to 3.2 to get 5.9.

$u = E = 5.9 + 1.3 + 1.6 + 1.8$

Add 1.3 to 5.9 to get 7.2.

$u = E = 7.2 + 1.6 + 1.8$

Add 1.6 to 7.2 to get 8.8.

$u = E = 8.8 + 1.8$

Add 1.8 to 8.8 to get 10.6.

$u = E = 10.6$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s = \sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(8-(10.6))^2 \cdot 0.4 + (9-(10.6))^2 \cdot 0.3 + (13-(10.6))^2 \cdot 0.1 + (16-(10.6))^2 \cdot 0.1 + (18-$$

Simplify the expression.

Problem 1 (Page 3)

3.527

Problem 1

x	P(x)
6	0.1
13	0.2
25	0.3
36	0.4

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 6 \cdot 0.1 + 13 \cdot 0.2 + 25 \cdot 0.3 + 36 \cdot 0.4$

Multiply 6 by 0.1 to get 0.6.

$u = E = 0.6 + 13 \cdot 0.2 + 25 \cdot 0.3 + 36 \cdot 0.4$

Multiply 13 by 0.2 to get 2.6.

$u = E = 0.6 + 2.6 + 25 \cdot 0.3 + 36 \cdot 0.4$

Multiply 25 by 0.3 to get 7.5.

$u = E = 0.6 + 2.6 + 7.5 + 36 \cdot 0.4$

Multiply 36 by 0.4 to get 14.4.

$u = E = 0.6 + 2.6 + 7.5 + 14.4$

Problem 1 (Page 2)

Add 2.6 to 0.6 to get 3.2.

$u=E=3.2+7.5+14.4$

Add 7.5 to 3.2 to get 10.7.

$u=E=10.7+14.4$

Add 14.4 to 10.7 to get 25.1.

$u=E=25.1$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(6-(25.1))^2 \cdot 0.1+(13-(25.1))^2 \cdot 0.2+(25-(25.1))^2 \cdot 0.3+(36-(25.1))^2 \cdot 0.4}$$

Simplify the expression.

10.6438

Problem 1

x	P(x)
12	0.3
20	0.2
29	0.4

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 12 \cdot 0.3 + 20 \cdot 0.2 + 29 \cdot 0.4$

Multiply 12 by 0.3 to get 3.6.

$u = E = 3.6 + 20 \cdot 0.2 + 29 \cdot 0.4$

Multiply 20 by 0.2 to get 4.

$u = E = 3.6 + 4 + 29 \cdot 0.4$

Multiply 29 by 0.4 to get 11.6.

$u = E = 3.6 + 4 + 11.6$

Add 4 to 3.6 to get 7.6.

$u = E = 7.6 + 11.6$

Add 11.6 to 7.6 to get 19.2.

$u = E = 19.2$

Problem 1 (Page 2)

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(12-(19.2))^2 \cdot 0.3+(20-(19.2))^2 \cdot 0.2+(29-(19.2))^2 \cdot 0.4}$$

Simplify the expression.

7.355

Problem 1

x	P(x)
11	0.2
22	0.2
35	0.2
39	0.3
47	0.1

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 11 \cdot 0.2 + 22 \cdot 0.2 + 35 \cdot 0.2 + 39 \cdot 0.3 + 47 \cdot 0.1$

Multiply 11 by 0.2 to get 2.2.

$u = E = 2.2 + 22 \cdot 0.2 + 35 \cdot 0.2 + 39 \cdot 0.3 + 47 \cdot 0.1$

Multiply 22 by 0.2 to get 4.4.

$u = E = 2.2 + 4.4 + 35 \cdot 0.2 + 39 \cdot 0.3 + 47 \cdot 0.1$

Multiply 35 by 0.2 to get 7.

$u = E = 2.2 + 4.4 + 7 + 39 \cdot 0.3 + 47 \cdot 0.1$

Multiply 39 by 0.3 to get 11.7.

$u = E = 2.2 + 4.4 + 7 + 11.7 + 47 \cdot 0.1$

Problem 1 (Page 2)

Multiply 47 by 0.1 to get 4.7.

$u=E=2.2+4.4+7+11.7+4.7$

Add 4.4 to 2.2 to get 6.6.

$u=E=6.6+7+11.7+4.7$

Add 7 to 6.6 to get 13.6.

$u=E=13.6+11.7+4.7$

Add 11.7 to 13.6 to get 25.3.

$u=E=25.3+4.7$

Add 4.7 to 25.3 to get 30.

$u=E=30$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(11-(30))^2 \cdot 0.2+(22-(30))^2 \cdot 0.2+(35-(30))^2 \cdot 0.2+(39-(30))^2 \cdot 0.3+(47-(3\ldots}$$

Simplify the expression.

Problem 1 (Page 3)

11.9666

Problem 1

x	P(x)
9	0.2
21	0.4
30	0.2
38	0.4

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 9 \cdot 0.2 + 21 \cdot 0.4 + 30 \cdot 0.2 + 38 \cdot 0.4$

Multiply 9 by 0.2 to get 1.8.

$u = E = 1.8 + 21 \cdot 0.4 + 30 \cdot 0.2 + 38 \cdot 0.4$

Multiply 21 by 0.4 to get 8.4.

$u = E = 1.8 + 8.4 + 30 \cdot 0.2 + 38 \cdot 0.4$

Multiply 30 by 0.2 to get 6.

$u = E = 1.8 + 8.4 + 6 + 38 \cdot 0.4$

Multiply 38 by 0.4 to get 15.2.

$u = E = 1.8 + 8.4 + 6 + 15.2$

Problem 1 (Page 2)

Add 8.4 to 1.8 to get 10.2.

$u=E=10.2+6+15.2$

Add 6 to 10.2 to get 16.2.

$u=E=16.2+15.2$

Add 15.2 to 16.2 to get 31.4.

$u=E=31.4$

The standard deviation of a distribution is a measure of the dispersion and is equal to the square root of the variation.

$$s=\sqrt{\sum (x-u)^2 \cdot P(x)}$$

Fill in the known values.

$$\sqrt{(9-(31.4))^2 \cdot 0.2+(21-(31.4))^2 \cdot 0.4+(30-(31.4))^2 \cdot 0.2+(38-(31.4))^2 \cdot 0.4}$$

Simplify the expression.

12.7056

Problem 1

x	P(x)
5	0.1
9	0.2
14	0.3
19	0.2
26	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=5\cdot 0.1+9\cdot 0.2+14\cdot 0.3+19\cdot 0.2+26\cdot 0.2$

Multiply 5 by 0.1 to get 0.5.

$u=E=0.5+9\cdot 0.2+14\cdot 0.3+19\cdot 0.2+26\cdot 0.2$

Multiply 9 by 0.2 to get 1.8.

$u=E=0.5+1.8+14\cdot 0.3+19\cdot 0.2+26\cdot 0.2$

Multiply 14 by 0.3 to get 4.2.

$u=E=0.5+1.8+4.2+19\cdot 0.2+26\cdot 0.2$

Multiply 19 by 0.2 to get 3.8.

$u=E=0.5+1.8+4.2+3.8+26\cdot 0.2$

Problem 1 (Page 2)

Multiply 26 by 0.2 to get 5.2.
$u=E=0.5+1.8+4.2+3.8+5.2$

Add 1.8 to 0.5 to get 2.3.
$u=E=2.3+4.2+3.8+5.2$

Add 4.2 to 2.3 to get 6.5.
$u=E=6.5+3.8+5.2$

Add 3.8 to 6.5 to get 10.3.
$u=E=10.3+5.2$

Add 5.2 to 10.3 to get 15.5.
$u=E=15.5$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum(x-u)^2\cdot P(x)$$

Fill in the known values.

$$(5-(15.5))^2\cdot 0.1+(9-(15.5))^2\cdot 0.2+(14-(15.5))^2\cdot 0.3+(19-(15.5))^2\cdot 0.2+(26-(15.5))^2\cdot 0.2$$

Problem 1 (Page 3)

Simplify the expression.

44.65

Problem 1

x	P(x)
2	0.1
7	0.1
9	0.2
11	0.4
14	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=2\cdot 0.1+7\cdot 0.1+9\cdot 0.2+11\cdot 0.4+14\cdot 0.2$

Multiply 2 by 0.1 to get 0.2.

$u=E=0.2+7\cdot 0.1+9\cdot 0.2+11\cdot 0.4+14\cdot 0.2$

Multiply 7 by 0.1 to get 0.7.

$u=E=0.2+0.7+9\cdot 0.2+11\cdot 0.4+14\cdot 0.2$

Multiply 9 by 0.2 to get 1.8.

$u=E=0.2+0.7+1.8+11\cdot 0.4+14\cdot 0.2$

Multiply 11 by 0.4 to get 4.4.

$u=E=0.2+0.7+1.8+4.4+14\cdot 0.2$

Problem 1 (Page 2)

Multiply 14 by 0.2 to get 2.8.

$u=E=0.2+0.7+1.8+4.4+2.8$

Add 0.7 to 0.2 to get 0.9.

$u=E=0.9+1.8+4.4+2.8$

Add 1.8 to 0.9 to get 2.7.

$u=E=2.7+4.4+2.8$

Add 4.4 to 2.7 to get 7.1.

$u=E=7.1+2.8$

Add 2.8 to 7.1 to get 9.9.

$u=E=9.9$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum(x-u)^2\cdot P(x)$$

Fill in the known values.

$$(2-(9.9))^2\cdot 0.1+(7-(9.9))^2\cdot 0.1+(9-(9.9))^2\cdot 0.2+(11-(9.9))^2\cdot 0.4+(14-(9.9))^2\cdot 0.2$$

Problem 1 (Page 3)

Simplify the expression.

11.09

Problem 1

x	P(x)
3	0.4
12	0.3
15	0.1
19	0.1
27	0.1

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=3\cdot0.4+12\cdot0.3+15\cdot0.1+19\cdot0.1+27\cdot0.1$

Multiply 3 by 0.4 to get 1.2.

$u=E=1.2+12\cdot0.3+15\cdot0.1+19\cdot0.1+27\cdot0.1$

Multiply 12 by 0.3 to get 3.6.

$u=E=1.2+3.6+15\cdot0.1+19\cdot0.1+27\cdot0.1$

Multiply 15 by 0.1 to get 1.5.

$u=E=1.2+3.6+1.5+19\cdot0.1+27\cdot0.1$

Multiply 19 by 0.1 to get 1.9.

$u=E=1.2+3.6+1.5+1.9+27\cdot0.1$

Problem 1 (Page 2)

Multiply 27 by 0.1 to get 2.7.

$u=E=1.2+3.6+1.5+1.9+2.7$

Add 3.6 to 1.2 to get 4.8.

$u=E=4.8+1.5+1.9+2.7$

Add 1.5 to 4.8 to get 6.3.

$u=E=6.3+1.9+2.7$

Add 1.9 to 6.3 to get 8.2.

$u=E=8.2+2.7$

Add 2.7 to 8.2 to get 10.9.

$u=E=10.9$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum(x-u)^2\cdot P(x)$$

Fill in the known values.

$(3-(10.9))^2\cdot 0.4+(12-(10.9))^2\cdot 0.3+(15-(10.9))^2\cdot 0.1+(19-(10.9))^2\cdot 0.1+(27-(10.9))^2\cdot 0.1$

Problem 1 (Page 3)

Simplify the expression.

59.49

Problem 1

x	P(x)
19	0.2
21	0.4
24	0.5
29	0.7

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=19\cdot 0.2+21\cdot 0.4+24\cdot 0.5+29\cdot 0.7$

Multiply 19 by 0.2 to get 3.8.

$u=E=3.8+21\cdot 0.4+24\cdot 0.5+29\cdot 0.7$

Multiply 21 by 0.4 to get 8.4.

$u=E=3.8+8.4+24\cdot 0.5+29\cdot 0.7$

Multiply 24 by 0.5 to get 12.

$u=E=3.8+8.4+12+29\cdot 0.7$

Multiply 29 by 0.7 to get 20.3.

$u=E=3.8+8.4+12+20.3$

Problem 1 (Page 2)

Add 8.4 to 3.8 to get 12.2.

$u = E = 12.2 + 12 + 20.3$

Add 12 to 12.2 to get 24.2.

$u = E = 24.2 + 20.3$

Add 20.3 to 24.2 to get 44.5.

$u = E = 44.5$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2 = \sum (x - u)^2 \cdot P(x)$$

Fill in the known values.

$$(19 - (44.5))^2 \cdot 0.2 + (21 - (44.5))^2 \cdot 0.4 + (24 - (44.5))^2 \cdot 0.5 + (29 - (44.5))^2 \cdot 0.7$$

Simplify the expression.

729.25

Problem 1

x	P(x)
14	0.2
17	0.4
21	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=14\cdot0.2+17\cdot0.4+21\cdot0.3$

Multiply 14 by 0.2 to get 2.8.

$u=E=2.8+17\cdot0.4+21\cdot0.3$

Multiply 17 by 0.4 to get 6.8.

$u=E=2.8+6.8+21\cdot0.3$

Multiply 21 by 0.3 to get 6.3.

$u=E=2.8+6.8+6.3$

Add 6.8 to 2.8 to get 9.6.

$u=E=9.6+6.3$

Add 6.3 to 9.6 to get 15.9.

$u=E=15.9$

Problem 1 (Page 2)

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2 = \sum (x-u)^2 \cdot P(x)$$

Fill in the known values.

$$(14-(15.9))^2 \cdot 0.2+(17-(15.9))^2 \cdot 0.4+(21-(15.9))^2 \cdot 0.3$$

Simplify the expression.

$$9.009$$

Problem 1

x	P(x)
9	0.3
15	0.2
22	0.3
25	0.2

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=9\cdot 0.3+15\cdot 0.2+22\cdot 0.3+25\cdot 0.2$

Multiply 9 by 0.3 to get 2.7.

$u=E=2.7+15\cdot 0.2+22\cdot 0.3+25\cdot 0.2$

Multiply 15 by 0.2 to get 3.

$u=E=2.7+3+22\cdot 0.3+25\cdot 0.2$

Multiply 22 by 0.3 to get 6.6.

$u=E=2.7+3+6.6+25\cdot 0.2$

Multiply 25 by 0.2 to get 5.

$u=E=2.7+3+6.6+5$

Problem 1 (Page 2)

Add 3 to 2.7 to get 5.7.

$u=E=5.7+6.6+5$

Add 6.6 to 5.7 to get 12.3.

$u=E=12.3+5$

Add 5 to 12.3 to get 17.3.

$u=E=17.3$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum(x-u)^2\cdot P(x)$$

Fill in the known values.

$$(9-(17.3))^2\cdot 0.3+(15-(17.3))^2\cdot 0.2+(22-(17.3))^2\cdot 0.3+(25-(17.3))^2\cdot 0.2$$

Simplify the expression.

40.21

Problem 1

x	P(x)
13	0.35
17	0.13
27	0.24

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 13 \cdot 0.35 + 17 \cdot 0.13 + 27 \cdot 0.24$

Multiply 13 by 0.35 to get 4.55.

$u = E = 4.55 + 17 \cdot 0.13 + 27 \cdot 0.24$

Multiply 17 by 0.13 to get 2.21.

$u = E = 4.55 + 2.21 + 27 \cdot 0.24$

Multiply 27 by 0.24 to get 6.48.

$u = E = 4.55 + 2.21 + 6.48$

Add 2.21 to 4.55 to get 6.76.

$u = E = 6.76 + 6.48$

Add 6.48 to 6.76 to get 13.24.

$u = E = 13.24$

Problem 1 (Page 2)

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2 = \sum (x-u)^2 \cdot P(x)$$

Fill in the known values.

$$(13-(13.24))^2 \cdot 0.35+(17-(13.24))^2 \cdot 0.13+(27-(13.24))^2 \cdot 0.24$$

Simplify the expression.

47.2991

Problem 1

x	P(x)
6	0.3
18	0.2
21	0.2
27	0.1
29	0.3

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 6 \cdot 0.3 + 18 \cdot 0.2 + 21 \cdot 0.2 + 27 \cdot 0.1 + 29 \cdot 0.3$

Multiply 6 by 0.3 to get 1.8.

$u = E = 1.8 + 18 \cdot 0.2 + 21 \cdot 0.2 + 27 \cdot 0.1 + 29 \cdot 0.3$

Multiply 18 by 0.2 to get 3.6.

$u = E = 1.8 + 3.6 + 21 \cdot 0.2 + 27 \cdot 0.1 + 29 \cdot 0.3$

Multiply 21 by 0.2 to get 4.2.

$u = E = 1.8 + 3.6 + 4.2 + 27 \cdot 0.1 + 29 \cdot 0.3$

Multiply 27 by 0.1 to get 2.7.

$u = E = 1.8 + 3.6 + 4.2 + 2.7 + 29 \cdot 0.3$

Problem 1 (Page 2)

Multiply 29 by 0.3 to get 8.7.

$u=E=1.8+3.6+4.2+2.7+8.7$

Add 3.6 to 1.8 to get 5.4.

$u=E=5.4+4.2+2.7+8.7$

Add 4.2 to 5.4 to get 9.6.

$u=E=9.6+2.7+8.7$

Add 2.7 to 9.6 to get 12.3.

$u=E=12.3+8.7$

Add 8.7 to 12.3 to get 21.

$u=E=21$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum (x-u)^2\cdot P(x)$$

Fill in the known values.

$$(6-(21))^2\cdot 0.3+(18-(21))^2\cdot 0.2+(21-(21))^2\cdot 0.2+(27-(21))^2\cdot 0.1+(29-(21))^2\cdot 0.3$$

Problem 1 (Page 3)

Simplify the expression.

92.1

Problem 1

x	P(x)
13	0.4
21	0.5
25	0.6
29	0.7
30	0.8

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u = E = 13 \cdot 0.4 + 21 \cdot 0.5 + 25 \cdot 0.6 + 29 \cdot 0.7 + 30 \cdot 0.8$

Multiply 13 by 0.4 to get 5.2.

$u = E = 5.2 + 21 \cdot 0.5 + 25 \cdot 0.6 + 29 \cdot 0.7 + 30 \cdot 0.8$

Multiply 21 by 0.5 to get 10.5.

$u = E = 5.2 + 10.5 + 25 \cdot 0.6 + 29 \cdot 0.7 + 30 \cdot 0.8$

Multiply 25 by 0.6 to get 15.

$u = E = 5.2 + 10.5 + 15 + 29 \cdot 0.7 + 30 \cdot 0.8$

Multiply 29 by 0.7 to get 20.3.

$u = E = 5.2 + 10.5 + 15 + 20.3 + 30 \cdot 0.8$

Problem 1 (Page 2)

Multiply 30 by 0.8 to get 24.

$u=E=5.2+10.5+15+20.3+24$

Add 10.5 to 5.2 to get 15.7.

$u=E=15.7+15+20.3+24$

Add 15 to 15.7 to get 30.7.

$u=E=30.7+20.3+24$

Add 20.3 to 30.7 to get 51.

$u=E=51+24$

Add 24 to 51 to get 75.

$u=E=75$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum (x-u)^2 \cdot P(x)$$

Fill in the known values.

$$(13-(75))^2 \cdot 0.4+(21-(75))^2 \cdot 0.5+(25-(75))^2 \cdot 0.6+(29-(75))^2 \cdot 0.7+(30-(75))^2 \cdot 0.8$$

Problem 1 (Page 3)

Simplify the expression.

7596.8

Problem 1

x	P(x)
26	0.25
35	0.41
46	0.32
51	0.54
60	0.62

The expectation of a distribution is the value expected if trials of the distribution could continue indefinitely. This is equal to each value multiplied by its discrete probability.

$u=E=26\cdot0.25+35\cdot0.41+46\cdot0.32+51\cdot0.54+60\cdot0.62$

Multiply 26 by 0.25 to get 6.5.

$u=E=6.5+35\cdot0.41+46\cdot0.32+51\cdot0.54+60\cdot0.62$

Multiply 35 by 0.41 to get 14.35.

$u=E=6.5+14.35+46\cdot0.32+51\cdot0.54+60\cdot0.62$

Multiply 46 by 0.32 to get 14.72.

$u=E=6.5+14.35+14.72+51\cdot0.54+60\cdot0.62$

Multiply 51 by 0.54 to get 27.54.

$u=E=6.5+14.35+14.72+27.54+60\cdot0.62$

Problem 1 (Page 2)

Multiply 60 by 0.62 to get 37.2.

$u=E=6.5+14.35+14.72+27.54+37.2$

Add 14.35 to 6.5 to get 20.85.

$u=E=20.85+14.72+27.54+37.2$

Add 14.72 to 20.85 to get 35.57.

$u=E=35.57+27.54+37.2$

Add 27.54 to 35.57 to get 63.11.

$u=E=63.11+37.2$

Add 37.2 to 63.11 to get 100.31.

$u=E=100.31$

The variance of a distribution is a measure of the dispersion and is equal to the square of the standard deviation.

$$s^2=\sum(x-u)^2\cdot P(x)$$

Fill in the known values.

$$(26-(100.31))^2\cdot 0.25+(35-(100.31))^2\cdot 0.41+(46-(100.31))^2\cdot 0.32+(51-(100.31))^2\cdot 0.54+(60-(100.31))^2\cdot 0.62$$

Problem 1 (Page 3)

Simplify the expression.

6393.6035

Problem 1

$\mu=10.85, \sigma=2.63, 8.29<x<11.79$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(8.29<x<11.79)=P(11.79)-P(8.29)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

$z=\frac{8.29-(10.85)}{2.63}$

Simplify the expression.

$z=-0.9734$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{11.79-(10.85)}{2.63}$$

Simplify the expression.

$z=0.3574$

Find the value in a look up table of the probability of a z-score of less than 0.335.

$z=-0.9734$ has an area under the curve 0.335

Find the value in a look up table of the probability of a z-score of less than 0.1398.

$z=0.3574$ has an area under the curve of 0.1398

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.1398-(-0.335)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.1398+0.335$

Add 0.335 to 0.1398 to get 0.4749.

$\text{Area}=0.4749$

The probability that the value lies in the given range is 0.4749.

Problem 1 (Page 3)

$P(8.29<x<11.79)=0.4749$

Problem 1

$\mu = 16.26, \sigma = 3.93, 13.92 < x < 17.85$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(13.92 < x < 17.85) = P(17.85) - P(13.92)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{13.92 - (16.26)}{3.93}$$

Simplify the expression.

$z = -0.5954$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{17.85-(16.26)}{3.93}$$

Simplify the expression.

$z=0.4046$

Find the value in a look up table of the probability of a z-score of less than 0.2244.

$z=-0.5954$ has an area under the curve 0.2244

Find the value in a look up table of the probability of a z-score of less than 0.1573.

$z=0.4046$ has an area under the curve of 0.1573

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.1573-(-0.2244)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.1573+0.2244$

Add 0.2244 to 0.1573 to get 0.3817.

$\text{Area}=0.3817$

The probability that the value lies in the given range is 0.3817.

Problem 1 (Page 3)

$P(13.92 < x < 17.85) = 0.3817$

Problem 1

$\mu=24.85, \sigma=6.01, 16.13<x<28.16$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(16.13<x<28.16)=P(28.16)-P(16.13)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{16.13-(24.85)}{6.01}$$

Simplify the expression.

$z=-1.4509$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{28.16-(24.85)}{6.01}$$

Simplify the expression.

$z=0.5507$

Find the value in a look up table of the probability of a z-score of less than 0.4267.

$z=-1.4509$ has an area under the curve 0.4267

Find the value in a look up table of the probability of a z-score of less than 0.2092.

$z=0.5507$ has an area under the curve of 0.2092

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.2092-(-0.4267)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.2092+0.4267$

Add 0.4267 to 0.2092 to get 0.636.

$\text{Area}=0.636$

The probability that the value lies in the given range is 0.636.

Problem 1 (Page 3)

$P(16.13 < x < 28.16) = 0.636$

Problem 1

$\mu=40.58, \sigma=9.82, 35.18<x<45$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(35.18<x<45)=P(45)-P(35.18)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{35.18-(40.58)}{9.82}$$

Simplify the expression.

$z=-0.5499$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{45-(40.58)}{9.82}$$

Simplify the expression.

$z=0.4501$

Find the value in a look up table of the probability of a z-score of less than 0.2089.

$z=-0.5499$ has an area under the curve 0.2089

Find the value in a look up table of the probability of a z-score of less than 0.174.

$z=0.4501$ has an area under the curve of 0.174

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.174-(-0.2089)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.174+0.2089$

Add 0.2089 to 0.174 to get 0.3829.

$\text{Area}=0.3829$

The probability that the value lies in the given range is 0.3829.

Problem 1 (Page 3)

$P(35.18<x<45)=0.3829$

Problem 1

$\mu=23.2, \sigma=8.42, 21.11<x<23.92$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(21.11<x<23.92)=P(23.92)-P(21.11)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{21.11-(23.2)}{8.42}$$

Simplify the expression.

$z=-0.2482$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{23.92-(23.2)}{8.42}$$

Simplify the expression.

$z=0.0855$

Find the value in a look up table of the probability of a z-score of less than 0.0983.

$z=-0.2482$ has an area under the curve 0.0983

Find the value in a look up table of the probability of a z-score of less than 0.0343.

$z=0.0855$ has an area under the curve of 0.0343

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.0343-(-0.0983)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.0343+0.0983$

Add 0.0983 to 0.0343 to get 0.1326.

$\text{Area}=0.1326$

The probability that the value lies in the given range is 0.1326.

Problem 1 (Page 3)

$P(21.11 < x < 23.92) = 0.1326$

Problem 1

$\mu=5.71, \sigma=2.07, 3.21>x>5.38$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(3.21>x>5.38)=P(5.38)-P(3.21)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

$z=\frac{3.21-(5.71)}{2.07}$

Simplify the expression.

$z=-1.2077$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{5.38-(5.71)}{2.07}$$

Simplify the expression.

$z = -0.1594$

Find the value in a look up table of the probability of a z-score of less than 0.3866.

$z = -1.2077$ has an area under the curve 0.3866

Find the value in a look up table of the probability of a z-score of less than 0.0636.

$z = -0.1594$ has an area under the curve of 0.0636

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area = -0.0636-(-0.3866)$

Multiply -1 by each term inside the parentheses.

$Area = -0.0636+0.3866$

Add 0.3866 to -0.0636 to get 0.323.

$Area = 0.323$

The probability that the value lies in the given range is 0.323.

Problem 1 (Page 3)

$P(3.21 > x > 5.38) = 0.323$

Problem 1

$\mu=45.24, \sigma=5.47, 31.8<x<45.31$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(31.8<x<45.31)=P(45.31)-P(31.8)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{31.8-(45.24)}{5.47}$$

Simplify the expression.

$z=-2.457$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$z=\frac{45.31-(45.24)}{5.47}$

Simplify the expression.

$z=0.0128$

Find the value in a look up table of the probability of a z-score of less than 0.4932.

$z=-2.457$ has an area under the curve 0.4932

Find the value in a look up table of the probability of a z-score of less than 0.0052.

$z=0.0128$ has an area under the curve of 0.0052

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area=0.0052-(-0.4932)$

Multiply -1 by each term inside the parentheses.

$Area=0.0052+0.4932$

Add 0.4932 to 0.0052 to get 0.4984.

$Area=0.4984$

The probability that the value lies in the given range is 0.4984.

Problem 1 (Page 3)

$P(31.8<x<45.31)=0.4984$

Problem 1

$\mu=1.1, \sigma=0.27, 0.64<x>0.84$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(0.64<x>0.84)=P(0.84)-P(0.64)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

$z=\frac{0.64-(1.1)}{0.27}$

Simplify the expression.

$z=-1.7037$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z=\frac{x-\mu}{\sigma}$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{0.84-(1.1)}{0.27}$$

Simplify the expression.

$z=-0.963$

Find the value in a look up table of the probability of a z-score of less than 0.456.

$z=-1.7037$ has an area under the curve 0.456

Find the value in a look up table of the probability of a z-score of less than 0.3323.

$z=-0.963$ has an area under the curve of 0.3323

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=-0.3323-(-0.456)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=-0.3323+0.456$

Add 0.456 to -0.3323 to get 0.1237.

$\text{Area}=0.1237$

The probability that the value lies in the given range is 0.1237.

Problem 1 (Page 3)

$P(0.64<x>0.84)=0.1237$

Problem 1

$\mu = 19.31, \sigma = 0.32, 0.64 > x < 0.84$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(0.64 > x < 0.84) = P(0.84) - P(0.64)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z = \frac{x - \mu}{\sigma}$

Fill in the known values.

$z = \frac{0.64 - (19.31)}{0.32}$

Simplify the expression.

$z = -58.3438$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z = \frac{x - \mu}{\sigma}$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{0.84-(19.31)}{0.32}$$

Simplify the expression.

$z=-57.7188$

Find the value in a look up table of the probability of a z-score of less than 0.5002.

$z=-58.3438$ has an area under the curve 0.5002

Find the value in a look up table of the probability of a z-score of less than 0.5002.

$z=-57.7188$ has an area under the curve of 0.5002

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=-0.5002-(-0.5002)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=-0.5002+0.5002$

Add 0.5002 to -0.5002 to get 0.

$\text{Area}=0$

The probability that the value lies in the given range is 0.

Problem 1 (Page 3)

P(0.64>x<0.84)=0

Problem 1

$\mu=69.16, \sigma=33.47, 50.54<x<78.14$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(50.54<x<78.14)=P(78.14)-P(50.54)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{50.54-(69.16)}{33.47}$$

Simplify the expression.

$z=-0.5563$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{78.14-(69.16)}{33.47}$$

Simplify the expression.

$z=0.2683$

Find the value in a look up table of the probability of a z-score of less than 0.2113.

$z=-0.5563$ has an area under the curve 0.2113

Find the value in a look up table of the probability of a z-score of less than 0.106.

$z=0.2683$ has an area under the curve of 0.106

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.106-(-0.2113)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.106+0.2113$

Add 0.2113 to 0.106 to get 0.3173.

$\text{Area}=0.3173$

The probability that the value lies in the given range is 0.3173.

Problem 1 (Page 3)

$P(50.54<x<78.14)=0.3173$

Problem 1

$\mu = 3.86, \sigma = 0.93, x = 3$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{3 - (3.86)}{0.93}$$

Simplify the expression.

$$z = -0.9247$$

Problem 1

$\mu = 4.64, \sigma = 1.12, x = 6$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{6 - (4.64)}{1.12}$$

Simplify the expression.

$z = 1.2143$

Problem 1

$\mu = 22.45, \sigma = 8.15, x = 19$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{19 - (22.45)}{8.15}$$

Simplify the expression.

$$z = -0.4233$$

Problem 1

$\mu = 29.93, \sigma = 3.62, x = 31$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{31 - (29.93)}{3.62}$$

Simplify the expression.

$$z = 0.2956$$

Problem 1

$\mu = 36.14, \sigma = 8.75, x = 33$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{33 - (36.14)}{8.75}$$

Simplify the expression.

$$z = -0.3589$$

Problem 1

$\mu = 5.35, \sigma = 1.94, x = 5$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{5 - (5.35)}{1.94}$$

Simplify the expression.

$$z = -0.1804$$

Problem 1

$\mu=62.25, \sigma=7.53, x=82$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{82-(62.25)}{7.53}$$

Simplify the expression.

$$z=2.6228$$

Problem 1

$\mu = 6.1, \sigma = 2.95, x = 7.9$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{7.9 - (6.1)}{2.95}$$

Simplify the expression.

$z = 0.6102$

Problem 1

$\mu=83.8, \sigma=40.56, x=182$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{182-(83.8)}{40.56}$$

Simplify the expression.

$$z=2.4211$$

Problem 1

$\mu = 42.45, \sigma = 20.55, x = 7.65$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{7.65 - (42.45)}{20.55}$$

Simplify the expression.

$z = -1.6934$

Problem 1

$n=14, p=0.73, x=0.7293797$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(14)(0.73)$

Simplify the expression.

$\mu=10.22$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(14)(0.73)(0.27)}$

Simplify the expression.

$\sigma=1.6611$

Problem 1

$n=11, p=0, x=0.00423827$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(11)(0)$

Simplify the expression.

$\mu=0$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(11)(0)(1)}$

Simplify the expression.

$\sigma=0$

Problem 1

$n=11, p=0.54, x=0.5377989$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(11)(0.54)$

Simplify the expression.

$\mu=5.94$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(11)(0.54)(0.46)}$

Simplify the expression.

$\sigma=1.653$

Problem 1

$n=16, p=0.94, x=0.9401137$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(16)(0.94)$

Simplify the expression.

$\mu=15.04$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(16)(0.94)(0.06)}$

Simplify the expression.

$\sigma=0.9499$

Problem 1

$n=25, p=0.8, x=0.7975116$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(25)(0.8)$

Simplify the expression.

$\mu=20$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(25)(0.8)(0.2)}$

Simplify the expression.

$\sigma=2$

Problem 1

$n=24, p=0.34, x=0.3376763$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(24)(0.34)$

Simplify the expression.

$\mu=8.16$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(24)(0.34)(0.66)}$

Simplify the expression.

$\sigma=2.3207$

Problem 1

$n=19, p=0.46, x=0.4600932$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(19)(0.46)$

Simplify the expression.

$\mu=8.74$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(19)(0.46)(0.54)}$

Simplify the expression.

$\sigma=2.1725$

Problem 1

$n=27, p=0.6, x=0.5999824$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(27)(0.6)$

Simplify the expression.

$\mu=16.2$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(27)(0.6)(0.4)}$

Simplify the expression.

$\sigma=2.5456$

Problem 1

$n=13, p=0.68, x=0.6804592$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(13)(0.68)$

Simplify the expression.

$\mu=8.84$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(13)(0.68)(0.32)}$

Simplify the expression.

$\sigma=1.6819$

Problem 1

$n=16, p=0.85, x=0.850559$

First, find the mean of the binomial distribution.

$\mu=np$

Fill in the known values.

$\mu=(16)(0.85)$

Simplify the expression.

$\mu=13.6$

Next, find the standard deviation of the binomial distribution.

$\mu=\sigma=\sqrt{npq}$

Fill in the known values.

$\sigma=\sqrt{(16)(0.85)(0.15)}$

Simplify the expression.

$\sigma=1.4283$

Problem 1

$\mu_{\bar{x}}=9.63, \sigma=2.33, n=36, 8.75<x<10.3$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

$$z=\frac{8.75-(9.63)}{\frac{2.33}{\sqrt{36}}}$$

Simplify the expression.

$z=-2.2661$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{10.3-(9.63)}{\frac{2.33}{\sqrt{36}}}$$

Simplify the expression.

$z=1.7253$

Find the probability value for the range.

$P(8.75<x<10.3)=0.946$

Problem 1

$\mu_{\bar{x}}=22.04, \sigma=2.67, n=36, 20.02<x<22.69$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{20.02-(22.04)}{\frac{2.67}{\sqrt{36}}}$$

Simplify the expression.

$z=-4.5393$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{22.69-(22.04)}{\frac{2.67}{\sqrt{36}}}$$

Simplify the expression.

$z=1.4607$

Find the probability value for the range.

$P(20.02<x<22.69)=0.928$

Problem 1

$\mu_{\bar{x}}=67.66, \sigma=24.56, n=33, 70.01<x<80.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{70.01-(67.66)}{\frac{24.56}{\sqrt{33}}}$$

Simplify the expression.

$z=0.5497$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{80.01-(67.66)}{\frac{24.56}{\sqrt{33}}}$$

Simplify the expression.

$z = 2.8887$

Find the probability value for the range.

$P(70.01 < x < 80.01) = 0.2893$

Problem 1

$\mu_{\bar{x}}=28.06, \sigma=16.98, n=36, 2.62<x<32.61$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{2.62-(28.06)}{\frac{16.98}{\sqrt{36}}}$$

Simplify the expression.

$z=-8.9894$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{32.61-(28.06)}{\frac{16.98}{\sqrt{36}}}$$

Simplify the expression.

z=1.6078

Find the probability value for the range.

P(2.62<x<32.61)=0.9461

Problem 1

$\mu_{\bar{x}}=5.74, \sigma=2.78, n=38, 2.18>x>3.31$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{2.18-(5.74)}{\frac{2.78}{\sqrt{38}}}$$

Simplify the expression.

$z=-7.894$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{3.31-(5.74)}{\frac{2.78}{\sqrt{38}}}$$

Simplify the expression.

$z = -5.3883$

Find the probability value for the range.

$P(2.18 > x > 3.31) = 3.5649 \cdot 10^{-08}$

Problem 1

$\mu_{\bar{x}}=31.65, \sigma=15.32, n=31, 21.71<x<37.03$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

$$z=\frac{21.71-(31.65)}{\frac{15.32}{\sqrt{31}}}$$

Simplify the expression.

$z=-3.6125$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{37.03-(31.65)}{\frac{15.32}{\sqrt{31}}}$$

Simplify the expression.

$z = 1.9553$

Find the probability value for the range.

$P(21.71 < x < 37.03) = 0.9745$

Problem 1

$\mu_{\bar{x}}=10.47, \sigma=5.07, n=39, 7.97<x<11.35$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{7.97-(10.47)}{\frac{5.07}{\sqrt{39}}}$$

Simplify the expression.

$z=-3.0794$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{11.35-(10.47)}{\frac{5.07}{\sqrt{39}}}$$

Simplify the expression.

$z=1.0839$

Find the probability value for the range.

$P(7.97<x<11.35)=0.8598$

Problem 1

$\mu_{\bar{x}}=74.98, \sigma=9.07, n=32, 60.7<x<81.02$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{60.7-(74.98)}{\frac{9.07}{\sqrt{32}}}$$

Simplify the expression.

$z=-8.9063$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{81.02-(74.98)}{\frac{9.07}{\sqrt{32}}}$$

Simplify the expression.

$z = 3.7671$

Find the probability value for the range.

$P(60.7 < x < 81.02) = 0.9999$

Problem 1

$\mu_{\bar{x}}=45.83, \sigma=22.18, n=35, 40.34<x<46.21$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{40.34-(45.83)}{\frac{22.18}{\sqrt{35}}}$$

Simplify the expression.

$z=-1.4644$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{46.21-(45.83)}{\frac{22.18}{\sqrt{35}}}$$

Simplify the expression.

$z=0.1014$

Find the probability value for the range.

$P(40.34<x<46.21)=0.4686$

Problem 1

$\mu_{\bar{x}}=29.97, \sigma=7.25, n=31, 31.0<x<32.37$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{31-(29.97)}{\frac{7.25}{\sqrt{31}}}$$

Simplify the expression.

$z=0.791$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{32.37-(29.97)}{\frac{7.25}{\sqrt{31}}}$$

Simplify the expression.

$z=1.8431$

Find the probability value for the range.

$P(31<x<32.37)=0.1818$

Problem 1

$-1.01 < z \le 1.66$

Find the value in a look up table of the probability of a z-score of less than 0.3441.

z=-1.01 has an area under the curve 0.3441

Find the value in a look up table of the probability of a z-score of less than 0.4517.

z=1.66 has an area under the curve of 0.4517

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area=0.4517-(-0.3441)

Multiply -1 by each term inside the parentheses.

Area=0.4517+0.3441

Add 0.3441 to 0.4517 to get 0.7958.

Area=0.7958

Problem 1

$0.72 \le z \le 2.44$

Find the value in a look up table of the probability of a z-score of less than 0.2646.

z=0.72 has an area under the curve 0.2646

Find the value in a look up table of the probability of a z-score of less than 0.4928.

z=2.44 has an area under the curve of 0.4928

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area=0.4928-(0.2646)

Multiply -1 by the 0.2646 inside the parentheses.

Area=0.4928-0.2646

Subtract 0.2646 from 0.4928 to get 0.2283.

Area=0.2283

Problem 1

$0.73 \leq z \leq 2.46$

Find the value in a look up table of the probability of a z-score of less than 0.2677.

z=0.73 has an area under the curve 0.2677

Find the value in a look up table of the probability of a z-score of less than 0.4932.

z=2.46 has an area under the curve of 0.4932

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area=0.4932-(0.2677)

Multiply -1 by the 0.2677 inside the parentheses.

Area=0.4932-0.2677

Subtract 0.2677 from 0.4932 to get 0.2256.

Area=0.2256

Problem 1

$-2.3<z<0.7$

Find the value in a look up table of the probability of a z-score of less than 0.4895.

z=-2.3 has an area under the curve 0.4895

Find the value in a look up table of the probability of a z-score of less than 0.2584.

z=0.7 has an area under the curve of 0.2584

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area=0.2584-(-0.4895)$

Multiply -1 by each term inside the parentheses.

$Area=0.2584+0.4895$

Add 0.4895 to 0.2584 to get 0.7479.

$Area=0.7479$

Problem 1

$-2.26<z<0.74$

Find the value in a look up table of the probability of a z-score of less than 0.4883.

z=-2.26 has an area under the curve 0.4883

Find the value in a look up table of the probability of a z-score of less than 0.2707.

z=0.74 has an area under the curve of 0.2707

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area=0.2707-(-0.4883)

Multiply -1 by each term inside the parentheses.

Area=0.2707+0.4883

Add 0.4883 to 0.2707 to get 0.759.

Area=0.759

Problem 1

$0.78 < z \leq 1.81$

Find the value in a look up table of the probability of a z-score of less than 0.2827.

z=0.78 has an area under the curve 0.2827

Find the value in a look up table of the probability of a z-score of less than 0.465.

z=1.81 has an area under the curve of 0.465

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area=0.465-(0.2827)

Multiply -1 by the 0.2827 inside the parentheses.

Area=0.465-0.2827

Subtract 0.2827 from 0.465 to get 0.1824.

Area=0.1824

Problem 1

$-0.67 < z \leq 1.89$

Find the value in a look up table of the probability of a z-score of less than 0.2489.

$z = -0.67$ has an area under the curve 0.2489

Find the value in a look up table of the probability of a z-score of less than 0.4708.

$z = 1.89$ has an area under the curve of 0.4708

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area} = 0.4708 - (-0.2489)$

Multiply -1 by each term inside the parentheses.

$\text{Area} = 0.4708 + 0.2489$

Add 0.2489 to 0.4708 to get 0.7197.

$\text{Area} = 0.7197$

Problem 1

$-1.07 \leq z < 1.93$

Find the value in a look up table of the probability of a z-score of less than 0.358.

$z = -1.07$ has an area under the curve 0.358

Find the value in a look up table of the probability of a z-score of less than 0.4734.

$z = 1.93$ has an area under the curve of 0.4734

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area} = 0.4734 - (-0.358)$

Multiply -1 by each term inside the parentheses.

$\text{Area} = 0.4734 + 0.358$

Add 0.358 to 0.4734 to get 0.8314.

$\text{Area} = 0.8314$

Problem 1

$-0.77 < z \leq 1.82$

Find the value in a look up table of the probability of a z-score of less than 0.2797.

$z = -0.77$ has an area under the curve 0.2797

Find the value in a look up table of the probability of a z-score of less than 0.4658.

$z = 1.82$ has an area under the curve of 0.4658

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area} = 0.4658 - (-0.2797)$

Multiply -1 by each term inside the parentheses.

$\text{Area} = 0.4658 + 0.2797$

Add 0.2797 to 0.4658 to get 0.7455.

$\text{Area} = 0.7455$

Problem 1

$0.81 \leq z \leq 2.62$

Find the value in a look up table of the probability of a z-score of less than 0.2914.

z = 0.81 has an area under the curve 0.2914

Find the value in a look up table of the probability of a z-score of less than 0.4958.

z = 2.62 has an area under the curve of 0.4958

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

Area = 0.4958 - (0.2914)

Multiply -1 by the 0.2914 inside the parentheses.

Area = 0.4958 - 0.2914

Subtract 0.2914 from 0.4958 to get 0.2044.

Area = 0.2044

Problem 1

$\mu=1.86, \sigma=0.45, 1.77<x<1.92$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(1.77<x<1.92)=P(1.92)-P(1.77)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{1.77-(1.86)}{0.45}$$

Simplify the expression.

$z=-0.2$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{1.92-(1.86)}{0.45}$$

Simplify the expression.

$z=0.1333$

Find the value in a look up table of the probability of a z-score of less than 0.0793.

$z=-0.2$ has an area under the curve 0.0793

Find the value in a look up table of the probability of a z-score of less than 0.0533.

$z=0.1333$ has an area under the curve of 0.0533

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area=0.0533-(-0.0793)$

Multiply -1 by each term inside the parentheses.

$Area=0.0533+0.0793$

Add 0.0793 to 0.0533 to get 0.1326.

$Area=0.1326$

The probability that the value lies in the given range is 0.1326.

Problem 1 (Page 3)

$P(1.77 < x < 1.92) = 0.1326$

Problem 1

$\mu=10.44, \sigma=2.53, 9.19<x<10.88$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(9.19<x<10.88)=P(10.88)-P(9.19)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{9.19-(10.44)}{2.53}$$

Simplify the expression.

$z=-0.4941$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{10.88-(10.44)}{2.53}$$

Simplify the expression.

$z=0.1739$

Find the value in a look up table of the probability of a z-score of less than 0.1897.

$z=-0.4941$ has an area under the curve 0.1897

Find the value in a look up table of the probability of a z-score of less than 0.0691.

$z=0.1739$ has an area under the curve of 0.0691

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area=0.0691-(-0.1897)$

Multiply -1 by each term inside the parentheses.

$Area=0.0691+0.1897$

Add 0.1897 to 0.0691 to get 0.2588.

$Area=0.2588$

The probability that the value lies in the given range is 0.2588.

Problem 1 (Page 3)

$P(9.19 < x < 10.88) = 0.2588$

Problem 1

$\mu=19.53, \sigma=7.09, 17.11<x<21.83$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(17.11<x<21.83)=P(21.83)-P(17.11)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{17.11-(19.53)}{7.09}$$

Simplify the expression.

$z=-0.3413$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$z = \frac{21.83-(19.53)}{7.09}$

Simplify the expression.

$z = 0.3244$

Find the value in a look up table of the probability of a z-score of less than 0.1338.

z=-0.3413 has an area under the curve 0.1338

Find the value in a look up table of the probability of a z-score of less than 0.1274.

z=0.3244 has an area under the curve of 0.1274

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$Area = 0.1274-(-0.1338)$

Multiply -1 by each term inside the parentheses.

$Area = 0.1274+0.1338$

Add 0.1338 to 0.1274 to get 0.2613.

$Area = 0.2613$

The probability that the value lies in the given range is 0.2613.

Problem 1 (Page 3)

$P(17.11 < x < 21.83) = 0.2613$

Problem 1

$\mu = 36.79, \sigma = 8.9, 15.23 > x > 32.22$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(15.23 > x > 32.22) = P(32.22) - P(15.23)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z = \frac{x - \mu}{\sigma}$

Fill in the known values.

$z = \frac{15.23 - (36.79)}{8.9}$

Simplify the expression.

$z = -2.4225$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$z = \frac{x - \mu}{\sigma}$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{32.22-(36.79)}{8.9}$$

Simplify the expression.

$z=-0.5135$

Find the value in a look up table of the probability of a z-score of less than 0.4925.

$z=-2.4225$ has an area under the curve 0.4925

Find the value in a look up table of the probability of a z-score of less than 0.1964.

$z=-0.5135$ has an area under the curve of 0.1964

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=-0.1964-(-0.4925)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=-0.1964+0.4925$

Add 0.4925 to -0.1964 to get 0.2961.

$\text{Area}=0.2961$

The probability that the value lies in the given range is 0.2961.

Problem 1 (Page 3)

$P(15.23>x>32.22)=0.2961$

Problem 1

$\mu=79.8, \sigma=9.66, 12.66>x>17.99$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(12.66>x>17.99)=P(17.99)-P(12.66)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{12.66-(79.8)}{9.66}$$

Simplify the expression.

$z=-6.9503$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{17.99-(79.8)}{9.66}$$

Simplify the expression.

$z=-6.3986$

Find the value in a look up table of the probability of a z-score of less than 0.5002.

$z=-6.9503$ has an area under the curve 0.5002

Find the value in a look up table of the probability of a z-score of less than 0.5002.

$z=-6.3986$ has an area under the curve of 0.5002

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=-0.5002-(-0.5002)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=-0.5002+0.5002$

Add 0.5002 to -0.5002 to get 0.

$\text{Area}=0$

The probability that the value lies in the given range is 0.

Problem 1 (Page 3)

$P(12.66>x>17.99)=0$

Problem 1

$\mu=17.48, \sigma=4.23, 12.46<x<18.22$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(12.46<x<18.22)=P(18.22)-P(12.46)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{12.46-(17.48)}{4.23}$$

Simplify the expression.

$z=-1.1868$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{18.22-(17.48)}{4.23}$$

Simplify the expression.

$z=0.1749$

Find the value in a look up table of the probability of a z-score of less than 0.3825.

$z=-1.1868$ has an area under the curve 0.3825

Find the value in a look up table of the probability of a z-score of less than 0.0695.

$z=0.1749$ has an area under the curve of 0.0695

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.0695-(-0.3825)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.0695+0.3825$

Add 0.3825 to 0.0695 to get 0.452.

$\text{Area}=0.452$

The probability that the value lies in the given range is 0.452.

Problem 1 (Page 3)

$P(12.46<x<18.22)=0.452$

Problem 1

$\mu = 27.85, \sigma = 13.48, 18.53 < x < 32.01$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(18.53 < x < 32.01) = P(32.01) - P(18.53)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{18.53 - (27.85)}{13.48}$$

Simplify the expression.

$z = -0.6914$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z=\frac{32.01-(27.85)}{13.48}$$

Simplify the expression.

$z=0.3086$

Find the value in a look up table of the probability of a z-score of less than 0.2556.

$z=-0.6914$ has an area under the curve 0.2556

Find the value in a look up table of the probability of a z-score of less than 0.1213.

$z=0.3086$ has an area under the curve of 0.1213

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.1213-(-0.2556)$

Multiply -1 by each term inside the parentheses.

$\text{Area}=0.1213+0.2556$

Add 0.2556 to 0.1213 to get 0.3769.

$\text{Area}=0.3769$

The probability that the value lies in the given range is 0.3769.

Problem 1 (Page 3)

$P(18.53<x<32.01)=0.3769$

Problem 1

$\mu=27.22, \sigma=3.29, 28<x<28.01$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(28<x<28.01)=P(28.01)-P(28)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{28-(27.22)}{3.29}$$

Simplify the expression.

$z=0.2371$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{28.01-(27.22)}{3.29}$$

Simplify the expression.

$z=0.2401$

Find the value in a look up table of the probability of a z-score of less than 0.0941.

$z=0.2371$ has an area under the curve 0.0941

Find the value in a look up table of the probability of a z-score of less than 0.0952.

$z=0.2401$ has an area under the curve of 0.0952

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area}=0.0952-(0.0941)$

Multiply -1 by the 0.0941 inside the parentheses.

$\text{Area}=0.0952-0.0941$

Subtract 0.0941 from 0.0952 to get 0.0012.

$\text{Area}=0.0012$

The probability that the value lies in the given range is 0.0012.

Problem 1 (Page 3)

$P(28 < x < 28.01) = 0.0012$

Problem 1

$\mu = 10.22, \sigma = 2.47, 5.43 > x > 8.31$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(5.43 > x > 8.31) = P(8.31) - P(5.43)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

$$z = \frac{5.43 - (10.22)}{2.47}$$

Simplify the expression.

$z = -1.9393$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z = \frac{x - \mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$z = \frac{8.31-(10.22)}{2.47}$

Simplify the expression.

$z = -0.7733$

Find the value in a look up table of the probability of a z-score of less than 0.474.

$z = -1.9393$ has an area under the curve 0.474

Find the value in a look up table of the probability of a z-score of less than 0.2806.

$z = -0.7733$ has an area under the curve of 0.2806

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area} = -0.2806-(-0.474)$

Multiply -1 by each term inside the parentheses.

$\text{Area} = -0.2806+0.474$

Add 0.474 to -0.2806 to get 0.1934.

$\text{Area} = 0.1934$

The probability that the value lies in the given range is 0.1934.

Problem 1 (Page 3)

$P(5.43 > x > 8.31) = 0.1934$

Problem 1

$\mu=44.29, \sigma=21.44, 33.39<x<54.83$

The probability that the value falls inside the range is the probability of the larger value occurring minus the probability of the smaller value occuring.

$P(33.39<x<54.83)=P(54.83)-P(33.39)$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

$$z=\frac{33.39-(44.29)}{21.44}$$

Simplify the expression.

$z=-0.5084$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event.

$$z=\frac{x-\mu}{\sigma}$$

Fill in the known values.

Problem 1 (Page 2)

$$z = \frac{54.83-(44.29)}{21.44}$$

Simplify the expression.

$z = 0.4916$

Find the value in a look up table of the probability of a z-score of less than 0.1946.

$z = -0.5084$ has an area under the curve 0.1946

Find the value in a look up table of the probability of a z-score of less than 0.1887.

$z = 0.4916$ has an area under the curve of 0.1887

To find the area between the two z-scores, subtract the smaller z-score value from the larger one. For any negative z-score, change the sign of the result to negative.

$\text{Area} = 0.1887-(-0.1946)$

Multiply -1 by each term inside the parentheses.

$\text{Area} = 0.1887+0.1946$

Add 0.1946 to 0.1887 to get 0.3833.

$\text{Area} = 0.3833$

The probability that the value lies in the given range is 0.3833.

Problem 1 (Page 3)

$P(33.39<x<54.83)=0.3833$

Problem 1

0.7234

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 0.59$

Problem 1

0.5769

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

z = 0.19

Problem 1

0.3599

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
z = -0.36

Problem 1

0.4446

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = -0.14$

Problem 1

0.8061

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 0.86$

Problem 1

0.5216

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = 0.05$

Problem 1

0.4824

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = -0.04$

Problem 1

0.0258

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = -1.95$

Problem 1

0.5832

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = 0.21$

Problem 1

0.9508

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 1.65$

Problem 1

0.4954

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = -0.01$

Problem 1

0.1727

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
z = -0.94

Problem 1

0.3527

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = -0.38$

Problem 1

0.4473

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
z= - 0.13

Problem 1

0

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

z=-1E+300

Problem 1

1

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
z=1E+300

Problem 1

0.5

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 0$

Problem 1

0.95

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 1.64$

Problem 1

0.999

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.
$z = 3.09$

Problem 1

0.1

To find the z-score for the standard normal distribution that corresponds to the given probability, look up the values in a standard table and find the closest match.

$z = -1.28$

Problem 1

$n=21, p=0.76, x=0.7572972$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.7573}{21}$$

Simplify the expression.

$$p_{sample}=0.0361$$

Fill in the known values to find z.

$$z=\frac{0.0361-(0.76)}{\sqrt{\frac{0.76\cdot 0.24}{21}}}$$

Simplify the expression.

$$z=-7.7678$$

Problem 1

$n=22, p=0.38, x=0.3773422$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.3773}{22}$$

Simplify the expression.

$$p_{sample}=0.0172$$

Fill in the known values to find z.

$$z=\frac{0.0172-(0.38)}{\sqrt{\frac{0.38\cdot 0.62}{22}}}$$

Simplify the expression.

$$z=-3.5063$$

Problem 1

$n=29, p=0.12, x=0.1188027$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.1188}{29}$$

Simplify the expression.

$$p_{sample}=0.0041$$

Fill in the known values to find z.

$$z=\frac{0.0041-(0.12)}{\sqrt{\frac{0.12\cdot 0.88}{29}}}$$

Simplify the expression.

$$z=-1.9207$$

Problem 1

$n=21, p=0.62, x=0.6216832$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.6217}{21}$$

Simplify the expression.

$$p_{sample}=0.0296$$

Fill in the known values to find z.

$$z=\frac{0.0296-(0.62)}{\sqrt{\frac{0.62\cdot 0.38}{21}}}$$

Simplify the expression.

$$z=-5.574$$

Problem 1

$n=10, p=0.24, x=0.2401096$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.2401}{10}$$

Simplify the expression.

$$p_{sample}=0.024$$

Fill in the known values to find z.

$$z=\frac{0.024-(0.24)}{\sqrt{\frac{0.24\cdot 0.76}{10}}}$$

Simplify the expression.

$$z=-1.5993$$

Problem 1

$n=17, p=0.05, x=0.04760958$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.0476}{17}$$

Simplify the expression.

$$p_{sample}=0.0028$$

Fill in the known values to find z.

$$z=\frac{0.0028-(0.05)}{\sqrt{\frac{0.05\cdot0.95}{17}}}$$

Simplify the expression.

$$z=-0.8929$$

Problem 1

$n=13, p=0.6, x=0.6018432$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.6018}{13}$$

Simplify the expression.

$$p_{sample}=0.0463$$

Fill in the known values to find z.

$$z=\frac{0.0463-(0.6)}{\sqrt{\frac{0.6\cdot 0.4}{13}}}$$

Simplify the expression.

$$z=-4.0752$$

Problem 1

$n=12, p=0.06, x=0.06223458$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.0622}{12}$$

Simplify the expression.

$$p_{sample}=0.0052$$

Fill in the known values to find z.

$$z=\frac{0.0052-(0.06)}{\sqrt{\frac{0.06\cdot 0.94}{12}}}$$

Simplify the expression.

$$z=-0.7995$$

Problem 1

$n=13, p=0.75, x=0.7523419$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.7523}{13}$$

Simplify the expression.

$$p_{sample}=0.0579$$

Fill in the known values to find z.

$$z=\frac{0.0579-(0.75)}{\sqrt{\frac{0.75\cdot0.25}{13}}}$$

Simplify the expression.

$$z=-5.7631$$

Problem 1

$n=12, p=0.68, x=0.6782202$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.6782}{12}$$

Simplify the expression.

$$p_{sample}=0.0565$$

Fill in the known values to find z.

$$z=\frac{0.0565-(0.68)}{\sqrt{\frac{0.68\cdot 0.32}{12}}}$$

Simplify the expression.

$$z=-4.63$$

Problem 1

$n=12, p=0.83, x=0.8341495$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.8341}{12}$$

Simplify the expression.

$$p_{sample}=0.0695$$

Fill in the known values to find z.

$$z=\frac{0.0695-(0.83)}{\sqrt{\frac{0.83\cdot 0.17}{12}}}$$

Simplify the expression.

$$z=-7.0132$$

Problem 1

$n=11, p=0.5, x=0.5025983$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.5026}{11}$$

Simplify the expression.

$$p_{sample}=0.0457$$

Fill in the known values to find z.

$$z=\frac{0.0457-(0.5)}{\sqrt{\frac{0.5\cdot 0.5}{11}}}$$

Simplify the expression.

$$z=-3.0136$$

Problem 1

$n=20, p=0.11, x=0.1106491$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.1106}{20}$$

Simplify the expression.

$$p_{sample}=0.0055$$

Fill in the known values to find z.

$$z=\frac{0.0055-(0.11)}{\sqrt{\frac{0.11\cdot0.89}{20}}}$$

Simplify the expression.

$$z=-1.4932$$

Problem 1

$n=21, p=0.7, x=0.7007117$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.7007}{21}$$

Simplify the expression.

$$p_{sample}=0.0334$$

Fill in the known values to find z.

$$z=\frac{0.0334-(0.7)}{\sqrt{\frac{0.7\cdot 0.3}{21}}}$$

Simplify the expression.

$$z=-6.6663$$

Problem 1

$n=14, p=0.87, x=0.8741134$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.8741}{14}$$

Simplify the expression.

$$p_{sample}=0.0624$$

Fill in the known values to find z.

$$z=\frac{0.0624-(0.87)}{\sqrt{\frac{0.87\cdot0.13}{14}}}$$

Simplify the expression.

$$z=-8.9848$$

Problem 1

$n=25, p=0.09, x=0.09130195$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.0913}{25}$$

Simplify the expression.

$$p_{sample}=0.0037$$

Fill in the known values to find z.

$$z=\frac{0.0037-(0.09)}{\sqrt{\frac{0.09\cdot 0.91}{25}}}$$

Simplify the expression.

$$z=-1.5086$$

Problem 1

$n=29, p=0.79, x=0.7941244$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.7941}{29}$$

Simplify the expression.

$$p_{sample}=0.0274$$

Fill in the known values to find z.

$$z=\frac{0.0274-(0.79)}{\sqrt{\frac{0.79\cdot 0.21}{29}}}$$

Simplify the expression.

$$z=-10.0828$$

Problem 1

$n=28, p=0.92, x=0.9217913$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.9218}{28}$$

Simplify the expression.

$$p_{sample}=0.0329$$

Fill in the known values to find z.

$$z=\frac{0.0329-(0.92)}{\sqrt{\frac{0.92\cdot 0.08}{28}}}$$

Simplify the expression.

$$z=-17.3022$$

Problem 1

$n=14, p=0.37, x=0.370979$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.371}{14}$$

Simplify the expression.

$$p_{sample}=0.0265$$

Fill in the known values to find z.

$$z=\frac{0.0265-(0.37)}{\sqrt{\frac{0.37\cdot 0.63}{14}}}$$

Simplify the expression.

$$z=-2.6621$$

Problem 1

$n=26, p=0.4, x=0.3967776$

First, find the mean of the binomial distribution.

$$z=\frac{p_{sample}-p}{\sqrt{\frac{pq}{n}}}$$

The population proportion is the number of true results (x) divided by the total samples (n).

$$p_{sample}=\frac{x}{n}$$

Fill in the known values.

$$p_{sample}=\frac{0.3968}{26}$$

Simplify the expression.

$$p_{sample}=0.0153$$

Fill in the known values to find z.

$$z=\frac{0.0153-(0.4)}{\sqrt{\frac{0.4\cdot 0.6}{26}}}$$

Simplify the expression.

$$z=-4.0045$$

Problem 1

$u=3, n=5, \alpha=.10$

Find the t-value using a t-distribution table. To prove the mean is equal to 3, use the two-tailed test.

$t=-2.1318$

Problem 1

$u \geq 2, n = 16, \alpha = .10$

Find the t-value using a t-distribution table. To prove the mean is greater than 2, use the one-tailed test.

$t = -1.3406$

Problem 1

$u \geq 2, n=14, \alpha=.05$

Find the t-value using a t-distribution table. To prove the mean is greater than 2, use the one-tailed test.

$t=-1.7709$

Problem 1

$u \leq 1, n = 25, \alpha = .10$

Find the t-value using a t-distribution table. To prove the mean is less than 1, use the one-tailed test.
$t = -1.3178$

Problem 1

$u \leq 1, n = 18, \alpha = .05$

Find the t-value using a t-distribution table. To prove the mean is less than 1, use the one-tailed test.
$t = -1.7396$

Problem 1

$u = 3, n = 20, \alpha = .01$

Find the t-value using a t-distribution table. To prove the mean is equal to 3, use the two-tailed test.

$t = -2.8609$

Problem 1

$u \geq 2, n = 21, \alpha = .10$

Find the t-value using a t-distribution table. To prove the mean is greater than 2, use the one-tailed test.

$t = -1.3253$

Problem 1

$u \leq 1, n = 18, \alpha = .10$

Find the t-value using a t-distribution table. To prove the mean is less than 1, use the one-tailed test.

$t = -1.3334$

Problem 1

$u \geq 2, n = 10, \alpha = .10$

Find the t-value using a t-distribution table. To prove the mean is greater than 2, use the one-tailed test.

$t = -1.383$

Problem 1

$u \le 1, n = 19, \alpha = .01$

Find the t-value using a t-distribution table. To prove the mean is less than 1, use the one-tailed test.
$t = -2.5524$

Problem 1

$\bar{x}=30.99, \mu_{\bar{x}}>30.29, \sigma_{\bar{x}}=11.25, n=73, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{30.99-(30.29)}{\frac{11.25}{\sqrt{73}}}$$

Simplify the expression.

$z=0.5316$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.2027$

Problem 1

$\bar{x}=15.68, \mu_{\bar{x}}<14.72, \sigma_{\bar{x}}=1.9, n=66, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{15.68-(14.72)}{\frac{1.9}{\sqrt{66}}}$$

Simplify the expression.

$z=4.1048$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.5002$

Problem 1

$\bar{x}=5.62, \mu_{\bar{x}}<5.14, \sigma_{\bar{x}}=0.68, n=58, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{5.62-(5.14)}{\frac{0.68}{\sqrt{58}}}$$

Simplify the expression.

$z=5.3758$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value$=0.5002$

Problem 1

$\bar{x}=36.95, \mu_{\bar{x}}>36.67, \sigma_{\bar{x}}=4.47, n=39, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{36.95-(36.67)}{\frac{4.47}{\sqrt{39}}}$$

Simplify the expression.

$z=0.3912$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.1525$

Problem 1

$\bar{x}=29.62, \mu_{\bar{x}}>28.85, \sigma_{\bar{x}}=7.17, n=100, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{29.62-(28.85)}{\frac{7.17}{\sqrt{100}}}$$

Simplify the expression.

$z=1.0739$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value$=0.3587$

Problem 1

$\bar{x}=64.16, \mu_{\bar{x}}>63.57, \sigma_{\bar{x}}=31.05, n=80, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{64.16-(63.57)}{\frac{31.05}{\sqrt{80}}}$$

Simplify the expression.

$z=0.17$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.0675$

Problem 1

$\bar{x}=37.6, \mu_{\bar{x}}>37.37, \sigma_{\bar{x}}=18.2, n=73, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{37.6-(37.37)}{\frac{18.2}{\sqrt{73}}}$$

Simplify the expression.

$z=0.108$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.043$

Problem 1

$\bar{x}=4.15, \mu_{\bar{x}}<3.78, \sigma_{\bar{x}}=0.5, n=100, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{4.15-(3.78)}{\frac{0.5}{\sqrt{100}}}$$

Simplify the expression.

$z=7.4$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.5002$

Problem 1

$\bar{x}=5.84, \mu_{\bar{x}}<5.34, \sigma_{\bar{x}}=2.83, n=32, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{5.84-(5.34)}{\frac{2.83}{\sqrt{32}}}$$

Simplify the expression.

$z=0.9994$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value$=0.3414$

Problem 1

$\bar{x}=28.41, \mu_{\bar{x}}<26.46, \sigma_{\bar{x}}=3.44, n=109, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{28.41-(26.46)}{\frac{3.44}{\sqrt{109}}}$$

Simplify the expression.

$z=5.9182$

The p-value is the probability of obtaining a test statistic at least as extreme as the one that was actually observed, assuming that the null hypothesis is true.

p-value $=0.5002$

Problem 1

$v = 14, \alpha = .10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t = -1.345$

Problem 1

$v=16, \alpha=.05$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t=-1.7459$

Problem 1

$v=21, \alpha=.10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t=-1.3232$

Problem 1

$v = 16, \alpha = .01$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t = -2.5835$

Problem 1

$v=18, \alpha=.10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t=-1.3304$

Problem 1

$v=27, \alpha=.10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.
$t=-1.3137$

Problem 1

$v = 25, \alpha = .10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.

$t = -1.3163$

Problem 1

$v=28, \alpha=.01$

Find the t-value for the given confidence level and degrees of freedom. This is normally done using a table of t-values.

$t=-2.4671$

Problem 1

$v=12, \alpha=.10$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.
$t=-1.3562$

Problem 1

$v=28, \alpha=.05$

Find the t-value for the given confidence level and degrees of freedom.
This is normally done using a table of t-values.
$t=-1.7011$

Problem 1

$\bar{x}=0.91, \mu_{\bar{x}}<0.83, \sigma_{\bar{x}}=0.22, n=43, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{0.91-(0.83)}{\frac{0.22}{\sqrt{43}}}$$

Simplify the expression.

$z=2.3845$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$. Since $n\geq 30$, use the normal distribution.

$z=1.28$

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis uxb<0.83.

$2.3845>1.28$

Problem 1

$\bar{x}=23.15, \mu_{\bar{x}}>22.17, \sigma_{\bar{x}}=2.8, n=94, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

$$z=\frac{23.15-(22.17)}{\frac{2.8}{\sqrt{94}}}$$

Simplify the expression.

$z=3.3934$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$. Since $n\geq 30$, use the normal distribution.

$z=1.28$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb>22.17.

$3.3934>1.28$

Problem 1

$\bar{x}=2.85, \mu_{\bar{x}}<2.64, \sigma_{\bar{x}}=0.69, n=43, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{2.85-(2.64)}{\frac{0.69}{\sqrt{43}}}$$

Simplify the expression.

$z=1.9957$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$. Since $n\geq30$, use the normal distribution.

$z=1.65$

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis uxb < 2.64.

$1.9957>1.65$

Problem 1

$\bar{x} = 69.24, \mu_{\bar{x}} > 67.64, \sigma_{\bar{x}} = 25.13, n = 55, \alpha = .01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{69.24 - (67.64)}{\frac{25.13}{\sqrt{55}}}$$

Simplify the expression.

$z = 0.4722$

The critical value represents the z-score that provides a significance level of $\alpha = 0.01$. Since $n \geq 30$, use the normal distribution.

$z = 2.33$

Since the z-score of the test statistic is less than the critical value, there is not sufficient evidence to support the hypothesis uxb>67.64.

$0.4722 < 2.33$

Problem 1

$\bar{x}=35.06, \mu_{\bar{x}}<32.92, \sigma_{\bar{x}}=16.97, n=46, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{35.06-(32.92)}{\frac{16.97}{\sqrt{46}}}$$

Simplify the expression.

$z=0.8553$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$. Since $n\geq30$, use the normal distribution.

$z=2.33$

Since the z-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis uxb<32.92.

$0.8553<2.33$

Problem 1

$\bar{x}=32.23, \mu_{\bar{x}}>12.92, \sigma_{\bar{x}}=26.97, n=46, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{32.23-(12.92)}{\frac{26.97}{\sqrt{46}}}$$

Simplify the expression.

$z=4.856$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$. Since $n\geq 30$, use the normal distribution.

$z=2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb>12.92.

$4.856>2.33$

Problem 1

$\bar{x}=21.94, \mu_{\bar{x}}>21.38, \sigma_{\bar{x}}=5.31, n=100, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{21.94-(21.38)}{\frac{5.31}{\sqrt{100}}}$$

Simplify the expression.

$z=1.0546$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$. Since $n\geq 30$, use the normal distribution.

$z=1.65$

Since the z-score of the test statistic is less than the critical value, there is not sufficient evidence to support the hypothesis uxb>21.38.

$1.0546<1.65$

Problem 1

$\bar{x} = 23.25, \mu_{\bar{x}} > 22.73, \sigma_{\bar{x}} = 5.63, n = 85, \alpha = .10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{23.25 - (22.73)}{\frac{5.63}{\sqrt{85}}}$$

Simplify the expression.

$z = 0.8515$

The critical value represents the z-score that provides a significance level of $\alpha = 0.1$. Since $n \geq 30$, use the normal distribution.

$z = 1.28$

Since the z-score of the test statistic is less than the critical value, there is not sufficient evidence to support the hypothesis uxb > 22.73.

$0.8515 < 1.28$

Problem 1

$\bar{x}=25.42, \mu_{\bar{x}}<23.59, \sigma_{\bar{x}}=9.23, n=72, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{25.42-(23.59)}{\frac{9.23}{\sqrt{72}}}$$

Simplify the expression.

$z=1.6823$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$. Since $n\geq 30$, use the normal distribution.

$z=1.28$

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis uxb < 23.59.

$1.6823>1.28$

Problem 1

$\bar{x}=38.17, \mu_{\bar{x}}<35.97, \sigma_{\bar{x}}=9.24, n=89, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{38.17-(35.97)}{\frac{9.24}{\sqrt{89}}}$$

Simplify the expression.

$z=2.2462$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$. Since $n\geq 30$, use the normal distribution.

$z=1.65$

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis uxb<35.97.

$2.2462>1.65$

Problem 1

$\bar{x}=4.44, \mu_{\bar{x}}=4.19, \sigma_{\bar{x}}=0.54, n=41, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{4.44-(4.19)}{\frac{0.54}{\sqrt{41}}}$$

Simplify the expression.

$z=2.9644$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.025$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$, since $n\geq30$ use the normal distribution.

$z=1.65$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value,
there is sufficient evidence to support the hypothesis.
$2.9644 > 1.65$

Problem 1

$\bar{x}=9.03, \mu_{\bar{x}}=8.33, \sigma_{\bar{x}}=4.37, n=42, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{9.03-(8.33)}{\frac{4.37}{\sqrt{42}}}$$

Simplify the expression.

$z=1.0381$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.005$$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$, since $n\geq30$ use the normal distribution.

$z=2.33$

Problem 1 (Page 2)

Since the z-score of the test statistic is greater than the critical value,
there is not sufficient evidence to support the hypothesis.
$1.0381 < 2.33$

Problem 1

$\bar{x} = 8.69, \mu_{\bar{x}} = 8.01, \sigma_{\bar{x}} = 2.1, n = 31, \alpha = .10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{8.69 - (8.01)}{\frac{2.1}{\sqrt{31}}}$$

Simplify the expression.

$z = 1.8029$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}} = \frac{\alpha}{2} = 0.05$$

The critical value represents the z-score that provides a significance level of $\alpha = 0.1$, since $n \geq 30$ use the normal distribution.

$z = 1.28$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis.

$1.8029 > 1.28$

Problem 1

$\bar{x}=25.41, \mu_{\bar{x}}=24.48, \sigma_{\bar{x}}=6.15, n=37, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{25.41-(24.48)}{\frac{6.15}{\sqrt{37}}}$$

Simplify the expression.

$z=0.9198$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.005$$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$, since $n \geq 30$ use the normal distribution.

$z=2.33$

Problem 1 (Page 2)

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.9198 < 2.33$

Problem 1

$\bar{x}=15.52, \mu_{\bar{x}}=14.57, \sigma_{\bar{x}}=1.88, n=51, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{15.52-(14.57)}{\frac{1.88}{\sqrt{51}}}$$

Simplify the expression.

$z=3.6087$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.005$$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$, since $n\geq30$ use the normal distribution.

$z=2.33$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis.

3.6087>2.33

Problem 1

$\bar{x}=33.13, \mu_{\bar{x}}=32.56, \sigma_{\bar{x}}=8.02, n=40, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{33.13-(32.56)}{\frac{8.02}{\sqrt{40}}}$$

Simplify the expression.

$z=0.4495$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n\geq 30$ use the normal distribution.

$z=1.28$

Problem 1 (Page 2)

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.4495<1.28$

Problem 1

$\bar{x} = 20.95, \mu_{\bar{x}} = 19.34, \sigma_{\bar{x}} = 2.53, n = 48, \alpha = .10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{20.95 - (19.34)}{\frac{2.53}{\sqrt{48}}}$$

Simplify the expression.

$z = 4.4089$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}} = \frac{\alpha}{2} = 0.05$

The critical value represents the z-score that provides a significance level of $\alpha = 0.1$, since $n \geq 30$ use the normal distribution.

$z = 1.28$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis.

4.4089>1.28

Problem 1

$\bar{x}=10.97, \mu_{\bar{x}}=10.01, \sigma_{\bar{x}}=1.33, n=36, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{10.97-(10.01)}{\frac{1.33}{\sqrt{36}}}$$

Simplify the expression.

$z=4.3308$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.025$$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$, since $n\geq 30$ use the normal distribution.

$z=1.65$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value,
there is sufficient evidence to support the hypothesis.
$4.3308 > 1.65$

Problem 1

$\bar{x}=14.33, \mu_{\bar{x}}=13.12, \sigma_{\bar{x}}=1.73, n=123, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{14.33-(13.12)}{\frac{1.73}{\sqrt{123}}}$$

Simplify the expression.

$z=7.757$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n\geq 30$ use the normal distribution.

$z=1.28$

Problem 1 (Page 2)

Since the z-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis.

7.757>1.28

Problem 1

$\bar{x} = 64.32, \mu_{\bar{x}} = 62.48, \sigma_{\bar{x}} = 31.13, n = 41, \alpha = .01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{64.32 - (62.48)}{\frac{31.13}{\sqrt{41}}}$$

Simplify the expression.

$z = 0.3785$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}} = \frac{\alpha}{2} = 0.005$

The critical value represents the z-score that provides a significance level of $\alpha = 0.01$, since $n \geq 30$ use the normal distribution.

$z = 2.33$

Problem 1 (Page 2)

Since the z-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.3785 < 2.33$

Problem 1

$\bar{x}=1.39, \mu_{\bar{x}}=1.27, \sigma_{\bar{x}}=0.5, n=23, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{(\frac{(\sigma_{\bar{x}})}{\sqrt{n}})}$$

Fill in the known values.

$$z=\frac{1.39-(1.27)}{\frac{0.5}{\sqrt{23}}}$$

Simplify the expression.

$z=1.151$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.005$$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$, since $n<30$ use the t-distribution with $n-1=22$ degrees of freedom.

$z=2.5083$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$1.151 < 2.5083$

Problem 1

$\bar{x}=27.76, \mu_{\bar{x}}=26.91, \sigma_{\bar{x}}=10.08, n=13, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{27.76-(26.91)}{\frac{10.08}{\sqrt{13}}}$$

Simplify the expression.

$z=0.304$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.025$$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$, since $n<30$ use the t-distribution with $n-1=12$ degrees of freedom.

$z=1.7823$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.304<1.7823$

Problem 1

$\bar{x}=38.38, \mu_{\bar{x}}=38.22, \sigma_{\bar{x}}=13.93, n=25, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{38.38-(38.22)}{\frac{13.93}{\sqrt{25}}}$$

Simplify the expression.

$z=0.0574$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n<30$ use the t-distribution with $n-1=24$ degrees of freedom.

$z=1.3178$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.0574 < 1.3178$

Problem 1

$\bar{x}=36.73, \mu_{\bar{x}}=34.55, \sigma_{\bar{x}}=17.78, n=21, \alpha=.01$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{36.73-(34.55)}{\frac{17.78}{\sqrt{21}}}$$

Simplify the expression.

$z=0.5619$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.005$

The critical value represents the z-score that provides a significance level of $\alpha=0.01$, since $n<30$ use the t-distribution with $n-1=20$ degrees of freedom.

$z=2.528$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

0.5619<2.528

Problem 1

$\bar{x}=5.97, \mu_{\bar{x}}=5.46, \sigma_{\bar{x}}=2.17, n=13, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{5.97-(5.46)}{\frac{2.17}{\sqrt{13}}}$$

Simplify the expression.

$z=0.8474$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n<30$ use the t-distribution with $n-1=12$ degrees of freedom.

$z=1.3562$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$0.8474 < 1.3562$

Problem 1

$\bar{x} = 26.81, \mu_{\bar{x}} = 24.93, \sigma_{\bar{x}} = 3.24, n = 20, \alpha = .10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z = \frac{(\bar{x} - \mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z = \frac{26.81 - (24.93)}{\frac{3.24}{\sqrt{20}}}$$

Simplify the expression.

$z = 2.5949$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}} = \frac{\alpha}{2} = 0.05$$

The critical value represents the z-score that provides a significance level of $\alpha = 0.1$, since $n < 30$ use the t-distribution with $n - 1 = 19$ degrees of freedom.

$z = 1.3277$

Problem 1 (Page 2)

Since the t-score of the test statistic is less than the critical value, there is sufficient evidence to support the hypothesis.
2.5949>1.3277

Problem 1

$\bar{x}=28.49, \mu_{\bar{x}}=26.54, \sigma_{\bar{x}}=6.89, n=23, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{28.49-(26.54)}{\frac{6.89}{\sqrt{23}}}$$

Simplify the expression.

$z=1.3573$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n<30$ use the t-distribution with $n-1=22$ degrees of freedom.

$z=1.3212$

Problem 1 (Page 2)

Since the t-score of the test statistic is less than the critical value,
there is sufficient evidence to support the hypothesis.
1.3573>1.3212

Problem 1

$\bar{x}=18.21, \mu_{\bar{x}}=16.76, \sigma_{\bar{x}}=8.81, n=18, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{18.21-(16.76)}{\frac{8.81}{\sqrt{18}}}$$

Simplify the expression.

$z=0.6983$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n<30$ use the t-distribution with $n-1=17$ degrees of freedom.

$z=1.3334$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value,
there is not sufficient evidence to support the hypothesis.
0.6983<1.3334

Problem 1

$\bar{x}=15.31, \mu_{\bar{x}}=14.04, \sigma_{\bar{x}}=5.56, n=23, \alpha=.05$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{15.31-(14.04)}{\frac{5.56}{\sqrt{23}}}$$

Simplify the expression.

$z=1.0954$

Since the claim is for an exact value of the mean, use the two-tailed test.

$$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.025$$

The critical value represents the z-score that provides a significance level of $\alpha=0.05$, since $n<30$ use the t-distribution with $n-1=22$ degrees of freedom.

$z=1.7171$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value, there is not sufficient evidence to support the hypothesis.

$1.0954 < 1.7171$

Problem 1

$\bar{x}=18.72, \mu_{\bar{x}}=17.24, \sigma_{\bar{x}}=4.53, n=12, \alpha=.10$

The z-score converts a non-standard distribution to a standard distribution in order to find the probability of an event. For the z-score of the distribution of means, the standard deviation is divided by the square root of the sample size.

$$z=\frac{(\bar{x}-\mu_{\bar{x}})}{\left(\frac{(\sigma_{\bar{x}})}{\sqrt{n}}\right)}$$

Fill in the known values.

$$z=\frac{18.72-(17.24)}{\frac{4.53}{\sqrt{12}}}$$

Simplify the expression.

$z=1.1318$

Since the claim is for an exact value of the mean, use the two-tailed test.

$\alpha_{\text{Two-Tail}}=\frac{\alpha}{2}=0.05$

The critical value represents the z-score that provides a significance level of $\alpha=0.1$, since $n<30$ use the t-distribution with $n-1=11$ degrees of freedom.

$z=1.3634$

Problem 1 (Page 2)

Since the t-score of the test statistic is greater than the critical value,
there is not sufficient evidence to support the hypothesis.

$1.1318 < 1.3634$

Problem 1

$\bar{x}=22.31, \mu_{\bar{x}}=21.32, \sigma_{\bar{x}}=10.8, n=27, \alpha=.10$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{22.31-(21.32)}{\frac{10.8}{5.1962}}$$

Simplify

$t=0.4763$

The critical value represents the z-score that provides a significance level of 0.1.

$z=-1.28$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=21.32.

$0.4763>-1.28$

Problem 1

$\bar{x}=19.2, \mu_{\bar{x}}=18.2, \sigma_{\bar{x}}=6.97, n=29, \alpha=.05$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{19.2-(18.2)}{\frac{6.97}{5.3852}}$$

Simplify

$t=0.7726$

The critical value represents the z-score that provides a significance level of 0.05.

$z=-1.65$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=18.2.

$0.7726>-1.65$

Problem 1

$\bar{x}=36.16, \mu_{\bar{x}}=35.81, \sigma_{\bar{x}}=8.75, n=29, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{36.16-(35.81)}{\frac{8.75}{5.3852}}$$

Simplify

$t=0.2154$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=35.81.

$0.2154>-2.33$

Problem 1

$\bar{x}=19.13, \mu_{\bar{x}}=18.13, \sigma_{\bar{x}}=9.26, n=19, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{19.13-(18.13)}{\frac{9.26}{4.3589}}$$

Simplify

$t=0.4707$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=18.13.

$0.4707>-2.33$

Problem 1

$\bar{x}=29.53, \mu_{\bar{x}}=28.75, \sigma_{\bar{x}}=10.72, n=18, \alpha=.10$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{29.53-(28.75)}{\frac{10.72}{4.2426}}$$

Simplify

$t=0.3087$

The critical value represents the z-score that provides a significance level of 0.1.

$z=-1.28$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=28.75.

$0.3087>-1.28$

Problem 1

$\bar{x}=50.57, \mu_{\bar{x}}=48.35, \sigma_{\bar{x}}=12.24, n=17, \alpha=.10$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{50.57-(48.35)}{\frac{12.24}{4.1231}}$$

Simplify

$t=0.7478$

The critical value represents the z-score that provides a significance level of 0.1.

$z=-1.28$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=48.35.

$0.7478>-1.28$

Problem 1

$\bar{x}=61.03, \mu_{\bar{x}}=59.06, \sigma_{\bar{x}}=22.15, n=25, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{61.03-(59.06)}{\frac{22.15}{5}}$$

Simplify

$t=0.4447$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=59.06.

$0.4447>-2.33$

Problem 1

$\bar{x}=5.82, \mu_{\bar{x}}=5.28, \sigma_{\bar{x}}=2.11, n=21, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{5.82-(5.28)}{\frac{2.11}{4.5826}}$$

Simplify

$t=1.1728$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=5.28.

$1.1728>-2.33$

Problem 1

$\bar{x}=83.55, \mu_{\bar{x}}=82.95, \sigma_{\bar{x}}=30.33, n=28, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{83.55-(82.95)}{\frac{30.33}{5.2915}}$$

Simplify

$t=0.1047$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb=82.95.

$0.1047>-2.33$

Problem 1

$\bar{x}=31.81, \mu_{\bar{x}}=31.16, \sigma_{\bar{x}}=3.85, n=18, \alpha=.01$

If a distribution is essentially normal, but there are not enough samples to approximate the normal distribution, use the t-distribution.

$$t=\frac{(\bar{x}-\mu)}{\frac{\sigma}{\sqrt{n}}}$$

Fill in the known values.

$$t=\frac{31.81-(31.16)}{\frac{3.85}{4.2426}}$$

Simplify

$t=0.7163$

The critical value represents the z-score that provides a significance level of 0.01.

$z=-2.33$

Since the z-score of the test statistic is greater than the critical value, there is sufficient evidence to support the hypothesis uxb = 31.16.

$0.7163>-2.33$

Problem 1

$n=31, \sigma=0.98$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu = \frac{0.98}{\sqrt{31}}$$

Simplify the result.

$\sigma_\mu = 0.176$

Problem 1

$n=69, \sigma=4.04$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{4.04}{\sqrt{69}}$$

Simplify the result.

$\sigma_{\mu}=0.4864$

Problem 1

$n=38, \sigma=0.26$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{0.26}{\sqrt{38}}$$

Simplify the result.

$$\sigma_{\mu}=0.0422$$

Problem 1

$n=66, \sigma=4.87$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu = \frac{4.87}{\sqrt{66}}$$

Simplify the result.

$$\sigma_\mu = 0.5995$$

Problem 1

$n = 52, \sigma = 2.95$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu = \frac{2.95}{\sqrt{52}}$$

Simplify the result.

$$\sigma_\mu = 0.4091$$

Problem 1

$n = 98, \sigma = 2.32$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu} = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu} = \frac{2.32}{\sqrt{98}}$$

Simplify the result.

$$\sigma_{\mu} = 0.2344$$

Problem 1

$n=98, \sigma=9.29$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{9.29}{\sqrt{98}}$$

Simplify the result.

$\sigma_{\mu}=0.9384$

Problem 1

$n = 78, \sigma = 6.54$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu = \frac{6.54}{\sqrt{78}}$$

Simplify the result.

$\sigma_\mu = 0.7405$

Problem 1

$n=82, \sigma=1.79$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu=\frac{1.79}{\sqrt{82}}$$

Simplify the result.

$$\sigma_\mu=0.1977$$

Problem 1

$n=92, \sigma=1.86$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu=\frac{1.86}{\sqrt{92}}$$

Simplify the result.

$$\sigma_\mu=0.1939$$

Problem 1

$n=95, \bar{x}=21.32, \sigma=7.74, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{7.74}{\sqrt{95}}$$

Simplify the result.

$E=1.5564$

Problem 1

$n=85, \bar{x}=23.8, \sigma=2.88, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{2.88}{\sqrt{85}}$$

Simplify the result.

$E=0.6123$

Problem 1

$n=46, \bar{x}=15.84, \sigma=1.92, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{1.92}{\sqrt{46}}$$

Simplify the result.

$E=0.5549$

Problem 1

$n=64, \bar{x}=1.85, \sigma=0.22, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{0.22}{\sqrt{64}}$$

Simplify the result.

$E=0.0539$

Problem 1

$n=84, \bar{x}=21.59, \sigma=5.22, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{5.22}{\sqrt{84}}$$

Simplify the result.

$E=1.1163$

Problem 1

$n=37, \bar{x}=6.21, \sigma=3.01, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{3.01}{\sqrt{37}}$$

Simplify the result.

$E=0.9699$

Problem 1

$n=74, \bar{x}=25.83, \sigma=12.5, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{12.5}{\sqrt{74}}$$

Simplify the result.

$E=2.8481$

Problem 1

$n=44, \bar{x}=20.25, \sigma=9.8, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{9.8}{\sqrt{44}}$$

Simplify the result.

$E=3.8117$

Problem 1

$n=94, \bar{x}=10.07, \sigma=4.87, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{4.87}{\sqrt{94}}$$

Simplify the result.

$E=0.9845$

Problem 1

$n=34, \bar{x}=14.63, \sigma=3.54, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{3.54}{\sqrt{34}}$$

Simplify the result.

$E=1.0017$

Problem 1

$n=93, \bar{x}=32.05, \sigma=3.88, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{3.88}{\sqrt{93}}$$

Simplify the result.

$E=0.6639$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$32.05-0.6639<\mu<32.05+0.6639$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$31.3861<\mu<32.7139$

Problem 1

$n=32, \bar{x}=4.14, \sigma=1, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{1}{\sqrt{32}}$$

Simplify the result.

$E=0.4561$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$4.14-0.4561<\mu<4.14+0.4561$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$3.6839<\mu<4.5961$

Problem 1

$n=66, \bar{x}=39.72, \sigma=4.81, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.81}{\sqrt{66}}$$

Simplify the result.

$E=1.5275$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.72-1.5275<\mu<39.72+1.5275$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$38.1925<\mu<41.2475$

Problem 1

$n=41, \bar{x}=24.32, \sigma=11.77, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{11.77}{\sqrt{41}}$$

Simplify the result.

$E=3.033$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$24.32-3.033<\mu<24.32+3.033$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$21.287<\mu<27.353$

Problem 1

$n=81, \bar{x}=10.69, \sigma=2.59, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{2.59}{\sqrt{81}}$$

Simplify the result.

$E=0.4748$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$10.69-0.4748<\mu<10.69+0.4748$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$10.2152<\mu<11.1648$

Problem 1

$n=97, \bar{x}=20.12, \sigma=4.87, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.87}{\sqrt{97}}$$

Simplify the result.

$E=1.2757$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$20.12-1.2757<\mu<20.12+1.2757$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$18.8443<\mu<21.3957$

Problem 1

$n=73, \bar{x}=39.52, \sigma=4.78, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.78}{\sqrt{73}}$$

Simplify the result.

$E=1.4434$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.52-1.4434<\mu<39.52+1.4434$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$38.0766<\mu<40.9634$

Problem 1

$n=46, \bar{x}=14.58, \sigma=5.29, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{5.29}{\sqrt{46}}$$

Simplify the result.

$E=2.0123$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$14.58-2.0123<\mu<14.58+2.0123$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$12.5677<\mu<16.5923$

Problem 1

$n=94, \bar{x}=7.29, \sigma=3.53, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{3.53}{\sqrt{94}}$$

Simplify the result.

$E=0.7136$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$7.29-0.7136<\mu<7.29+0.7136$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$6.5764<\mu<8.0036$

Problem 1

$n=92, \bar{x}=27.04, \sigma=13.09, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{13.09}{\sqrt{92}}$$

Simplify the result.

$E=3.521$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$27.04-3.521<\mu<27.04+3.521$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$23.519<\mu<30.561$

Problem 1

$E=1.13, \sigma=10.96, \alpha=.10$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{1.65\cdot 10.96}{1.13}\right]^2$$

Simplify the result.

$n=256.1133$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=257$

Problem 1

$E=0.93, \sigma=9.02, \alpha=.05$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.96\cdot 9.02}{0.93}]^2$$

Simplify the result.

$n=361.376$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=362$

Problem 1

$E=1.44, \sigma=6.99, \alpha=.10$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{1.65\cdot 6.99}{1.44}\right]^2$$

Simplify the result.

$n=64.1501$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=65$

Problem 1

$E=1.71, \sigma=16.55, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{2.58\cdot 16.55}{1.71}]^2$$

Simplify the result.

$n=623.5097$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=624$

Problem 1

$E=0.82, \sigma=5.95, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{2.58 \cdot 5.95}{0.82}]^2$$

Simplify the result.

$n=350.4658$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=351$

Problem 1

$E=2.01, \sigma=9.71, \alpha=.05$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{1.96\cdot 9.71}{2.01}\right]^2$$

Simplify the result.

$n=89.6517$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=90$

Problem 1

$E=1.31, \sigma=3.18, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{2.58 \cdot 3.18}{1.31}]^2$$

Simplify the result.

$n=39.2239$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=40$

Problem 1

$E=4.31, \sigma=31.26, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{2.58\cdot 31.26}{4.31}\right]^2$$

Simplify the result.

$n=350.157$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=351$

Problem 1

$E=1.48, \sigma=10.77, \alpha=.05$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.96\cdot 10.77}{1.48}]^2$$

Simplify the result.

$n=203.4324$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=204$

Problem 1

$E=2.05, \sigma=19.83, \alpha=.10$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{1.65\cdot 19.83}{2.05}\right]^2$$

Simplify the result.

$n=254.745$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=255$

Problem 1

$n=27, \bar{x}=31.86, \sigma=3.86, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7056\cdot\frac{3.86}{\sqrt{27}}$$

Simplify the result.

$E=1.267$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$31.86-1.267<\mu<31.86+1.267$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$30.593<\mu<33.127$

Problem 1

$n=19, \bar{x}=18.27, \sigma=2.21, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7341\cdot\frac{2.21}{\sqrt{19}}$$

Simplify the result.

$E=0.8792$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$18.27-0.8792<\mu<18.27+0.8792$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$17.3908<\mu<19.1492$

Problem 1

$n=21, \bar{x}=33.03, \sigma=4, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.086\cdot\frac{4}{\sqrt{21}}$$

Simplify the result.

$E=1.8208$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$33.03-1.8208<\mu<33.03+1.8208$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$31.2092<\mu<34.8508$

Problem 1

$n=28, \bar{x}=19.88, \sigma=4.81, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7707\cdot\frac{4.81}{\sqrt{28}}$$

Simplify the result.

$E=2.5186$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$19.88-2.5186<\mu<19.88+2.5186$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$17.3614<\mu<22.3986$

Problem 1

$n=29, \bar{x}=61.35, \sigma=22.27, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7011\cdot\frac{22.27}{\sqrt{29}}$$

Simplify the result.

$E=7.0349$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$61.35-7.0349<\mu<61.35+7.0349$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$54.3151<\mu<68.3849$

Problem 1

$n=28, \bar{x}=17.54, \sigma=4.24, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7707\cdot\frac{4.24}{\sqrt{28}}$$

Simplify the result.

$E=2.2201$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$17.54-2.2201<\mu<17.54+2.2201$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$15.3199<\mu<19.7601$

Problem 1

$n=16, \bar{x}=17, \sigma=4.11, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.9467\cdot\frac{4.11}{\sqrt{16}}$$

Simplify the result.

$E=3.0278$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$17-3.0278<\mu<17+3.0278$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$13.9722<\mu<20.0278$

Problem 1

$n=24, \bar{x}=15.51, \sigma=5.63, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.0687\cdot\frac{5.63}{\sqrt{24}}$$

Simplify the result.

$E=2.3773$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$15.51-2.3773<\mu<15.51+2.3773$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$13.1327<\mu<17.8873$

Problem 1

$n=13, \bar{x}=11.1, \sigma=2.69, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.0545\cdot\frac{2.69}{\sqrt{13}}$$

Simplify the result.

$E=2.2789$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$11.1-2.2789<\mu<11.1+2.2789$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$8.8211<\mu<13.3789$

Problem 1

$n=11, \bar{x}=13.2, \sigma=3.19, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.1693\cdot\frac{3.19}{\sqrt{11}}$$

Simplify the result.

$E=3.0483$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$13.2-3.0483<\mu<13.2+3.0483$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$10.1517<\mu<16.2483$

Problem 1

$n=22, \bar{x}=44.28, \sigma=16.07, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.8314\cdot\frac{16.07}{\sqrt{22}}$$

Simplify the result.

$$E=9.7006$$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$44.28-9.7006<\mu<44.28+9.7006$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$34.5794<\mu<53.9806$$

Problem 1

$n=18, \bar{x}=3.69, \sigma=1.34, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7396\cdot\frac{1.34}{\sqrt{18}}$$

Simplify the result.

$E=0.5494$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$3.69-0.5494<\mu<3.69+0.5494$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$3.1406<\mu<4.2394$

Problem 1

$n=11, \bar{x}=38.58, \sigma=14, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.8125\cdot\frac{14}{\sqrt{11}}$$

Simplify the result.

$E=7.6507$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$38.58-7.6507<\mu<38.58+7.6507$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$30.9293<\mu<46.2307$

Problem 1

$n=10, \bar{x}=18.77, \sigma=9.08, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.2498\cdot\frac{9.08}{\sqrt{10}}$$

Simplify the result.

$E=9.3314$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$18.77-9.3314<\mu<18.77+9.3314$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$9.4386<\mu<28.1014$

Problem 1

$n=25, \bar{x}=15.16, \sigma=5.5, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7969\cdot\frac{5.5}{\sqrt{25}}$$

Simplify the result.

$$E=3.0766$$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$15.16-3.0766<\mu<15.16+3.0766$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$12.0834<\mu<18.2366$$

Problem 1

$n=11, \bar{x}=39.01, \sigma=4.72, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.2281\cdot\frac{4.72}{\sqrt{11}}$$

Simplify the result.

$E=3.1709$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.01-3.1709<\mu<39.01+3.1709$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$35.8391<\mu<42.1809$

Problem 1

$n=24, \bar{x}=15.61, \sigma=3.78, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7139\cdot\frac{3.78}{\sqrt{24}}$$

Simplify the result.

$E=1.3224$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$15.61-1.3224<\mu<15.61+1.3224$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$14.2876<\mu<16.9324$

Problem 1

$n=13, \bar{x}=37.86, \sigma=13.74, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.
Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.0545\cdot\frac{13.74}{\sqrt{13}}$$

Simplify the result.

$E=11.6402$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$37.86-11.6402<\mu<37.86+11.6402$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$26.2198<\mu<49.5002$$

Problem 1

$n=17, \bar{x}=9.69, \sigma=2.34, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7459\cdot\frac{2.34}{\sqrt{17}}$$

Simplify the result.

$E=0.9908$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$9.69-0.9908<\mu<9.69+0.9908$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$8.6992<\mu<10.6808$

Problem 1

$n=29, \bar{x}=26.48, \sigma=3.2, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7011\cdot\frac{3.2}{\sqrt{29}}$$

Simplify the result.

$$E=1.0108$$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$26.48-1.0108<\mu<26.48+1.0108$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$25.4691<\mu<27.4908$$

Problem 1

$n=31, \sigma=0.98$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu=\frac{0.98}{\sqrt{31}}$$

Simplify the result.

$$\sigma_\mu=0.176$$

Problem 1

$n=69, \sigma=4.04$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu=\frac{4.04}{\sqrt{69}}$$

Simplify the result.

$$\sigma_\mu=0.4864$$

Problem 1

$n=38, \sigma=0.26$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{0.26}{\sqrt{38}}$$

Simplify the result.

$$\sigma_{\mu}=0.0422$$

Problem 1

$n=66, \sigma=4.87$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{4.87}{\sqrt{66}}$$

Simplify the result.

$$\sigma_{\mu}=0.5995$$

Problem 1

$n = 52, \sigma = 2.95$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu = \frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu = \frac{2.95}{\sqrt{52}}$$

Simplify the result.

$\sigma_\mu = 0.4091$

Problem 1

$n=98, \sigma=2.32$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{2.32}{\sqrt{98}}$$

Simplify the result.

$\sigma_{\mu}=0.2344$

Problem 1

$n=98, \sigma=9.29$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{9.29}{\sqrt{98}}$$

Simplify the result.

$\sigma_{\mu}=0.9384$

Problem 1

$n=78, \sigma=6.54$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_\mu=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_\mu=\frac{6.54}{\sqrt{78}}$$

Simplify the result.

$$\sigma_\mu=0.7405$$

Problem 1

$n=82, \sigma=1.79$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{1.79}{\sqrt{82}}$$

Simplify the result.

$$\sigma_{\mu}=0.1977$$

Problem 1

$n=92, \sigma=1.86$

To find the standard error of the mean, divide the standard deviation by the number of samples using the Central Limit Theorem.

$$\sigma_{\mu}=\frac{\sigma}{\sqrt{n}}$$

Fill in the known values.

$$\sigma_{\mu}=\frac{1.86}{\sqrt{92}}$$

Simplify the result.

$\sigma_{\mu}=0.1939$

Problem 1

$n=95, \bar{x}=21.32, \sigma=7.74, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{7.74}{\sqrt{95}}$$

Simplify the result.

$E=1.5564$

Problem 1

$n=85, \bar{x}=23.8, \sigma=2.88, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{2.88}{\sqrt{85}}$$

Simplify the result.

$E=0.6123$

Problem 1

$n=46, \bar{x}=15.84, \sigma=1.92, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{1.92}{\sqrt{46}}$$

Simplify the result.

$E=0.5549$

Problem 1

$n=64, \bar{x}=1.85, \sigma=0.22, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{0.22}{\sqrt{64}}$$

Simplify the result.

$E=0.0539$

Problem 1

$n=84, \bar{x}=21.59, \sigma=5.22, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{5.22}{\sqrt{84}}$$

Simplify the result.

$E=1.1163$

Problem 1

$n=37, \bar{x}=6.21, \sigma=3.01, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{3.01}{\sqrt{37}}$$

Simplify the result.

$E=0.9699$

Problem 1

$n=74, \bar{x}=25.83, \sigma=12.5, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{12.5}{\sqrt{74}}$$

Simplify the result.

$E=2.8481$

Problem 1

$n=44, \bar{x}=20.25, \sigma=9.8, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{9.8}{\sqrt{44}}$$

Simplify the result.

$E=3.8117$

Problem 1

$n=94, \bar{x}=10.07, \sigma=4.87, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{4.87}{\sqrt{94}}$$

Simplify the result.

$E=0.9845$

Problem 1

$n=34, \bar{x}=14.63, \sigma=3.54, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{3.54}{\sqrt{34}}$$

Simplify the result.

$E=1.0017$

Problem 1

$n=93, \bar{x}=32.05, \sigma=3.88, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{3.88}{\sqrt{93}}$$

Simplify the result.

$E=0.6639$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$32.05-0.6639<\mu<32.05+0.6639$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$31.3861<\mu<32.7139$

Problem 1

$n=32, \bar{x}=4.14, \sigma=1, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{1}{\sqrt{32}}$$

Simplify the result.

$E=0.4561$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$4.14-0.4561<\mu<4.14+0.4561$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$3.6839<\mu<4.5961$

Problem 1

$n=66, \bar{x}=39.72, \sigma=4.81, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.81}{\sqrt{66}}$$

Simplify the result.

$E=1.5275$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.72-1.5275<\mu<39.72+1.5275$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$38.1925<\mu<41.2475$

Problem 1

$n=41, \bar{x}=24.32, \sigma=11.77, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{11.77}{\sqrt{41}}$$

Simplify the result.

$E=3.033$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$24.32-3.033<\mu<24.32+3.033$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$21.287<\mu<27.353$

Problem 1

$n=81, \bar{x}=10.69, \sigma=2.59, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.65\cdot\frac{2.59}{\sqrt{81}}$$

Simplify the result.

$E=0.4748$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$10.69-0.4748<\mu<10.69+0.4748$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$10.2152<\mu<11.1648$

Problem 1

$n=97, \bar{x}=20.12, \sigma=4.87, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.87}{\sqrt{97}}$$

Simplify the result.

$E=1.2757$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$20.12-1.2757<\mu<20.12+1.2757$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$18.8443<\mu<21.3957$

Problem 1

$n=73, \bar{x}=39.52, \sigma=4.78, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{4.78}{\sqrt{73}}$$

Simplify the result.

$E=1.4434$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.52-1.4434<\mu<39.52+1.4434$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$38.0766<\mu<40.9634$

Problem 1

$n=46, \bar{x}=14.58, \sigma=5.29, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{5.29}{\sqrt{46}}$$

Simplify the result.

$E=2.0123$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$14.58-2.0123<\mu<14.58+2.0123$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$12.5677<\mu<16.5923$

Problem 1

$n=94, \bar{x}=7.29, \sigma=3.53, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.96\cdot\frac{3.53}{\sqrt{94}}$$

Simplify the result.

$E=0.7136$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$7.29-0.7136<\mu<7.29+0.7136$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$6.5764<\mu<8.0036$

Problem 1

$n=92, \bar{x}=27.04, \sigma=13.09, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.58\cdot\frac{13.09}{\sqrt{92}}$$

Simplify the result.

$E=3.521$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$27.04-3.521<\mu<27.04+3.521$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$23.519<\mu<30.561$

Problem 1

$E=1.13, \sigma=10.96, \alpha=.10$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.65\cdot 10.96}{1.13}]^2$$

Simplify the result.

$n=256.1133$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=257$

Problem 1

$E=0.93, \sigma=9.02, \alpha=.05$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.96\cdot 9.02}{0.93}]^2$$

Simplify the result.

$n=361.376$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=362$

Problem 1

$E=1.44, \sigma=6.99, \alpha=.10$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.65\cdot 6.99}{1.44}]^2$$

Simplify the result.

$n=64.1501$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=65$

Problem 1

$E=1.71, \sigma=16.55, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=\left[\frac{z_{\alpha/2}\sigma}{E}\right]^2$$

Insert the known values into the interval.

$$n=\left[\frac{2.58\cdot 16.55}{1.71}\right]^2$$

Simplify the result.

$n=623.5097$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=624$

Problem 1

$E=0.82, \sigma=5.95, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{2.58\cdot 5.95}{0.82}]^2$$

Simplify the result.

$n=350.4658$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=351$

Problem 1

$E = 2.01, \sigma = 9.71, \alpha = .05$

Use the formula involving both maxmium error (E) and sample size n.

$$E = \frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n = [\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n = [\frac{1.96 \cdot 9.71}{2.01}]^2$$

Simplify the result.

$n = 89.6517$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n = 90$

Problem 1

$E=1.31, \sigma=3.18, \alpha=.01$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{2.58\cdot 3.18}{1.31}]^2$$

Simplify the result.

$n=39.2239$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=40$

Problem 1

$E = 4.31, \sigma = 31.26, \alpha = .01$

Use the formula involving both maxmium error (E) and sample size n.

$$E = \frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n = [\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n = [\frac{2.58 \cdot 31.26}{4.31}]^2$$

Simplify the result.

$n = 350.157$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n = 351$

Problem 1

$E=1.48, \sigma=10.77, \alpha=.05$

Use the formula involving both maxmium error (E) and sample size n.

$$E=\frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n=[\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n=[\frac{1.96\cdot 10.77}{1.48}]^2$$

Simplify the result.

$n=203.4324$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n=204$

Problem 1

$E = 2.05, \sigma = 19.83, \alpha = .10$

Use the formula involving both maxmium error (E) and sample size n.

$$E = \frac{z_{\alpha/2}\sigma}{\sqrt{n}}$$

Set up the formula to solve for n by rearranging the formula for the maximum error (E).

$$n = [\frac{z_{\alpha/2}\sigma}{E}]^2$$

Insert the known values into the interval.

$$n = [\frac{1.65 \cdot 19.83}{2.05}]^2$$

Simplify the result.

$n = 254.745$

Round the result up to find the minimum sample size n that is required to reach the desired confidence level.

$n = 255$

Problem 1

$n=27, \bar{x}=31.86, \sigma=3.86, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7056\cdot\frac{3.86}{\sqrt{27}}$$

Simplify the result.

$E=1.267$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$31.86-1.267<\mu<31.86+1.267$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$30.593<\mu<33.127$

Problem 1

$n=19, \bar{x}=18.27, \sigma=2.21, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7341\cdot\frac{2.21}{\sqrt{19}}$$

Simplify the result.

$E=0.8792$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$18.27-0.8792<\mu<18.27+0.8792$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$17.3908<\mu<19.1492$

Problem 1

$n=21, \bar{x}=33.03, \sigma=4, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.086\cdot\frac{4}{\sqrt{21}}$$

Simplify the result.

$E=1.8208$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$33.03-1.8208<\mu<33.03+1.8208$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$31.2092<\mu<34.8508$

Problem 1

$n=28, \bar{x}=19.88, \sigma=4.81, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7707\cdot\frac{4.81}{\sqrt{28}}$$

Simplify the result.

$E=2.5186$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$19.88-2.5186<\mu<19.88+2.5186$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$17.3614<\mu<22.3986$

Problem 1

$n=29, \bar{x}=61.35, \sigma=22.27, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7011\cdot\frac{22.27}{\sqrt{29}}$$

Simplify the result.

$E=7.0349$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$61.35-7.0349<\mu<61.35+7.0349$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$54.3151<\mu<68.3849$$

Problem 1

$n=28, \bar{x}=17.54, \sigma=4.24, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7707\cdot\frac{4.24}{\sqrt{28}}$$

Simplify the result.

$E=2.2201$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$17.54-2.2201<\mu<17.54+2.2201$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$15.3199<\mu<19.7601$

Problem 1

$n=16, \bar{x}=17, \sigma=4.11, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.9467\cdot\frac{4.11}{\sqrt{16}}$$

Simplify the result.

$E=3.0278$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$17-3.0278<\mu<17+3.0278$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$13.9722<\mu<20.0278$

Problem 1

$n=24, \bar{x}=15.51, \sigma=5.63, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.0687\cdot\frac{5.63}{\sqrt{24}}$$

Simplify the result.

$E=2.3773$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$$\bar{x}-E<\mu<\bar{x}+E$$

Insert the known values into the interval.

$$15.51-2.3773<\mu<15.51+2.3773$$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$$13.1327<\mu<17.8873$$

Problem 1

$n=13, \bar{x}=11.1, \sigma=2.69, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.0545\cdot\frac{2.69}{\sqrt{13}}$$

Simplify the result.

$E=2.2789$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$11.1-2.2789<\mu<11.1+2.2789$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$8.8211<\mu<13.3789$

Problem 1

$n=11, \bar{x}=13.2, \sigma=3.19, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.1693\cdot\frac{3.19}{\sqrt{11}}$$

Simplify the result.

$E=3.0483$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$13.2-3.0483<\mu<13.2+3.0483$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$10.1517<\mu<16.2483$

Problem 1

$n=22, \bar{x}=44.28, \sigma=16.07, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.8314\cdot\frac{16.07}{\sqrt{22}}$$

Simplify the result.

$E=9.7006$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$44.28-9.7006<\mu<44.28+9.7006$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$34.5794<\mu<53.9806$

Problem 1

$n=18, \bar{x}=3.69, \sigma=1.34, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level.
Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7396\cdot\frac{1.34}{\sqrt{18}}$$

Simplify the result.

$E=0.5494$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$3.69-0.5494<\mu<3.69+0.5494$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$3.1406<\mu<4.2394$

Problem 1

$n=11, \bar{x}=38.58, \sigma=14, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.8125\cdot\frac{14}{\sqrt{11}}$$

Simplify the result.

$E=7.6507$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$38.58-7.6507<\mu<38.58+7.6507$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$30.9293<\mu<46.2307$

Problem 1

$n=10, \bar{x}=18.77, \sigma=9.08, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.2498\cdot\frac{9.08}{\sqrt{10}}$$

Simplify the result.

$E=9.3314$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$18.77-9.3314<\mu<18.77+9.3314$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$9.4386<\mu<28.1014$

Problem 1

$n=25, \bar{x}=15.16, \sigma=5.5, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.7969\cdot\frac{5.5}{\sqrt{25}}$$

Simplify the result.

$E=3.0766$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$15.16-3.0766<\mu<15.16+3.0766$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$12.0834<\mu<18.2366$

Problem 1

$n=11, \bar{x}=39.01, \sigma=4.72, \alpha=.05$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=2.2281\cdot\frac{4.72}{\sqrt{11}}$$

Simplify the result.

$E=3.1709$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$39.01-3.1709<\mu<39.01+3.1709$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$35.8391<\mu<42.1809$

Problem 1

$n=24, \bar{x}=15.61, \sigma=3.78, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7139\cdot\frac{3.78}{\sqrt{24}}$$

Simplify the result.

$E=1.3224$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$15.61-1.3224<\mu<15.61+1.3224$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$14.2876<\mu<16.9324$

Problem 1

$n=13, \bar{x}=37.86, \sigma=13.74, \alpha=.01$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=3.0545\cdot\frac{13.74}{\sqrt{13}}$$

Simplify the result.

$E=11.6402$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$37.86-11.6402<\mu<37.86+11.6402$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$26.2198<\mu<49.5002$

Problem 1

$n=17, \bar{x}=9.69, \sigma=2.34, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7459\cdot\frac{2.34}{\sqrt{17}}$$

Simplify the result.

$E=0.9908$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$9.69-0.9908<\mu<9.69+0.9908$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$8.6992<\mu<10.6808$

Problem 1

$n=29, \bar{x}=26.48, \sigma=3.2, \alpha=.10$

The formula provides the maximum error within a $1-\alpha$ confidence level. Since there are less than 30 samples, use the t-distribution.

$$E=\frac{t_{\alpha/2}\sigma}{\sqrt{n}}$$

Insert the known values into the formula.

$$E=1.7011\cdot\frac{3.2}{\sqrt{29}}$$

Simplify the result.

$E=1.0108$

The confidence level is the range of values for the real mean based on the estimated mean and a degree of confidence.

$\bar{x}-E<\mu<\bar{x}+E$

Insert the known values into the interval.

$26.48-1.0108<\mu<26.48+1.0108$

Simplify the result. The actual mean with a 1-<S>alpha<z> confidence level is within this interval.

$25.4691<\mu<27.4908$

Problem 1

x	y
13	21
11	22
10	21
12	18
11	22
13	20
13	21
10	20

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=13+11+10+12+11+13+13+10$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 93$

Sum up the values of the second column of data (y).

$\sum y = 21 + 22 + 21 + 18 + 22 + 20 + 21 + 20$

Simplify the expression.

$\sum y = 165$

Sum up the values of $x \cdot y$.

$\sum xy = 13 \cdot 21 + 11 \cdot 22 + 10 \cdot 21 + 12 \cdot 18 + 11 \cdot 22 + 13 \cdot 20 + 13 \cdot 21 + 10 \cdot 20$

Simplify the expression.

$\sum xy = 1916$

Sum up the values of x^2.

$\sum x^2 = (13)^2 + (11)^2 + (10)^2 + (12)^2 + (11)^2 + (13)^2 + (13)^2 + (10)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 1093$

Sum up the values of y^2.

$\sum y^2 = (21)^2 + (22)^2 + (21)^2 + (18)^2 + (22)^2 + (20)^2 + (21)^2 + (20)^2$

Simplify the expression.

$\sum y^2 = 3415$

Fill in the computed values.

$$r = \frac{8(1916) - (93)(165)}{\sqrt{8(1093) - (93)^2} \cdot \sqrt{8(3415) - (165)^2}}$$

Simplify the expression.

$r = -0.1789$

Problem 1 (Page 2)

Simplify the expression.

$\sum y = 106$

Sum up the values of $x \cdot y$.

$\sum xy = 53 \cdot 32 + 55 \cdot 36 + 44 \cdot 38$

Simplify the expression.

$\sum xy = 5348$

Sum up the values of x^2.

$\sum x^2 = (53)^2 + (55)^2 + (44)^2$

Simplify the expression.

$\sum x^2 = 7770$

Sum up the values of y^2.

$\sum y^2 = (32)^2 + (36)^2 + (38)^2$

Problem 1

x	y
53	32
55	36
44	38

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=53+55+44$$

Simplify the expression.

$$\sum x=152$$

Sum up the values of the second column of data (y).

$$\sum y=32+36+38$$

Problem 1 (Page 3)

Simplify the expression.

$\sum y^2 = 3764$

Fill in the computed values.

$$r = \frac{3(5348) - (152)(106)}{\sqrt{3(7770) - (152)^2} \cdot \sqrt{3(3764) - (106)^2}}$$

Simplify the expression.

$r = -0.6331$

Problem 1

x	y
16	16
7	18
13	25
13	18
10	20
9	14
12	14
9	26

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=16+7+13+13+10+9+12+9$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 89$

Sum up the values of the second column of data (y).

$\sum y = 16 + 18 + 25 + 18 + 20 + 14 + 14 + 26$

Simplify the expression.

$\sum y = 151$

Sum up the values of $x \cdot y$.

$\sum xy = 16 \cdot 16 + 7 \cdot 18 + 13 \cdot 25 + 13 \cdot 18 + 10 \cdot 20 + 9 \cdot 14 + 12 \cdot 14 + 9 \cdot 26$

Simplify the expression.

$\sum xy = 1669$

Sum up the values of x^2.

$\sum x^2 = (16)^2 + (7)^2 + (13)^2 + (13)^2 + (10)^2 + (9)^2 + (12)^2 + (9)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 1049$

Sum up the values of y^2.

$\sum y^2 = (16)^2 + (18)^2 + (25)^2 + (18)^2 + (20)^2 + (14)^2 + (14)^2 + (26)^2$

Simplify the expression.

$\sum y^2 = 2997$

Fill in the computed values.

$$r = \frac{8(1669) - (89)(151)}{\sqrt{8(1049) - (89)^2} \cdot \sqrt{8(2997) - (151)^2}}$$

Simplify the expression.

$r = -0.1169$

Problem 1

x	y
22	20
9	24
11	21
21	23
26	20
14	24
21	22
11	23

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=22+9+11+21+26+14+21+11$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 135$

Sum up the values of the second column of data (y).

$\sum y = 20 + 24 + 21 + 23 + 20 + 24 + 22 + 23$

Simplify the expression.

$\sum y = 177$

Sum up the values of $x \cdot y$.

$\sum xy = 22 \cdot 20 + 9 \cdot 24 + 11 \cdot 21 + 21 \cdot 23 + 26 \cdot 20 + 14 \cdot 24 + 21 \cdot 22 + 11 \cdot 23$

Simplify the expression.

$\sum xy = 2941$

Sum up the values of x^2.

$\sum x^2 = (22)^2 + (9)^2 + (11)^2 + (21)^2 + (26)^2 + (14)^2 + (21)^2 + (11)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 2561$

Sum up the values of y^2.

$\sum y^2 = (20)^2 + (24)^2 + (21)^2 + (23)^2 + (20)^2 + (24)^2 + (22)^2 + (23)^2$

Simplify the expression.

$\sum y^2 = 3935$

Fill in the computed values.

$$r = \frac{8(2941) - (135)(177)}{\sqrt{8(2561) - (135)^2} \cdot \sqrt{8(3935) - (177)^2}}$$

Simplify the expression.

$r = -0.6278$

Problem 1

x	y
26	21
27	23
30	21
23	24
24	23
21	24
27	22
30	24

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=26+27+30+23+24+21+27+30$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 208$

Sum up the values of the second column of data (y).

$\sum y = 21 + 23 + 21 + 24 + 23 + 24 + 22 + 24$

Simplify the expression.

$\sum y = 182$

Sum up the values of $x \cdot y$.

$\sum xy = 26 \cdot 21 + 27 \cdot 23 + 30 \cdot 21 + 23 \cdot 24 + 24 \cdot 23 + 21 \cdot 24 + 27 \cdot 22 + 30 \cdot 24$

Simplify the expression.

$\sum xy = 4719$

Sum up the values of x^2.

$\sum x^2 = (26)^2 + (27)^2 + (30)^2 + (23)^2 + (24)^2 + (21)^2 + (27)^2 + (30)^2$

Simplify the expression.

Problem 1 (Page 3)

$$\sum x^2 = 5480$$

Sum up the values of y^2.

$$\sum y^2 = (21)^2 + (23)^2 + (21)^2 + (24)^2 + (23)^2 + (24)^2 + (22)^2 + (24)^2$$

Simplify the expression.

$$\sum y^2 = 4152$$

Fill in the computed values.

$$r = \frac{8(4719) - (208)(182)}{\sqrt{8(5480) - (208)^2} \cdot \sqrt{8(4152) - (182)^2}}$$

Simplify the expression.

$$r = -0.4518$$

Problem 1

x	y
31	13
42	10
42	14
33	15
32	11
35	16
43	14

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=31+42+42+33+32+35+43$$

Simplify the expression.

$$\sum x=258$$

Problem 1 (Page 2)

Sum up the values of the second column of data (y).

$$\sum y = 13 + 10 + 14 + 15 + 11 + 16 + 14$$

Simplify the expression.

$$\sum y = 93$$

Sum up the values of $x \cdot y$.

$$\sum xy = 31 \cdot 13 + 42 \cdot 10 + 42 \cdot 14 + 33 \cdot 15 + 32 \cdot 11 + 35 \cdot 16 + 43 \cdot 14$$

Simplify the expression.

$$\sum xy = 3420$$

Sum up the values of x^2.

$$\sum x^2 = (31)^2 + (42)^2 + (42)^2 + (33)^2 + (32)^2 + (35)^2 + (43)^2$$

Simplify the expression.

$$\sum x^2 = 9676$$

Problem 1 (Page 3)

Sum up the values of y^2.

$$\sum y^2=(13)^2+(10)^2+(14)^2+(15)^2+(11)^2+(16)^2+(14)^2$$

Simplify the expression.

$$\sum y^2=1263$$

Fill in the computed values.

$$r=\frac{7(3420)-(258)(93)}{\sqrt{7(9676)-(258)^2}\cdot\sqrt{7(1263)-(93)^2}}$$

Simplify the expression.

$$r=-0.114$$

Problem 1

x	y
7	27
12	22
10	24
8	26
10	21
12	22
9	22
11	23
7	25

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=7+12+10+8+10+12+9+11+7$$

Problem 1 (Page 2)

Simplify the expression.

$$\sum x = 86$$

Sum up the values of the second column of data (y).

$$\sum y = 27 + 22 + 24 + 26 + 21 + 22 + 22 + 23 + 25$$

Simplify the expression.

$$\sum y = 212$$

Sum up the values of $x \cdot y$.

$$\sum xy = 7 \cdot 27 + 12 \cdot 22 + 10 \cdot 24 + 8 \cdot 26 + 10 \cdot 21 + 12 \cdot 22 + 9 \cdot 22 + 11 \cdot 23 + 7 \cdot 25$$

Simplify the expression.

$$\sum xy = 2001$$

Sum up the values of x^2.

$$\sum x^2 = (7)^2 + (12)^2 + (10)^2 + (8)^2 + (10)^2 + (12)^2 + (9)^2 + (11)^2 + (7)^2$$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 852$

Sum up the values of y^2.

$\sum y^2 = (27)^2 + (22)^2 + (24)^2 + (26)^2 + (21)^2 + (22)^2 + (22)^2 + (23)^2 + (25)^2$

Simplify the expression.

$\sum y^2 = 5028$

Fill in the computed values.

$$r = \frac{9(2001) - (86)(212)}{\sqrt{9(852) - (86)^2} \cdot \sqrt{9(5028) - (212)^2}}$$

Simplify the expression.

$r = -0.7705$

Problem 1

x	y
16	15
14	11
28	8
11	10

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=16+14+28+11$$

Simplify the expression.

$$\sum x=69$$

Sum up the values of the second column of data (y).

Problem 1 (Page 2)

$\sum y = 15 + 11 + 8 + 10$

Simplify the expression.

$\sum y = 44$

Sum up the values of $x \cdot y$.

$\sum xy = 16 \cdot 15 + 14 \cdot 11 + 28 \cdot 8 + 11 \cdot 10$

Simplify the expression.

$\sum xy = 728$

Sum up the values of x^2.

$\sum x^2 = (16)^2 + (14)^2 + (28)^2 + (11)^2$

Simplify the expression.

$\sum x^2 = 1357$

Sum up the values of y^2.

Problem 1 (Page 3)

$$\sum y^2 = (15)^2 + (11)^2 + (8)^2 + (10)^2$$

Simplify the expression.

$$\sum y^2 = 510$$

Fill in the computed values.

$$r = \frac{4(728) - (69)(44)}{\sqrt{4(1357) - (69)^2} \cdot \sqrt{4(510) - (44)^2}}$$

Simplify the expression.

$$r = -0.4708$$

Problem 1

x	y
29	28
26	28
31	34

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=29+26+31$$

Simplify the expression.

$$\sum x=86$$

Sum up the values of the second column of data (y).

$$\sum y=28+28+34$$

Problem 1 (Page 2)

Simplify the expression.

$\sum y = 90$

Sum up the values of $x \cdot y$.

$\sum xy = 29 \cdot 28 + 26 \cdot 28 + 31 \cdot 34$

Simplify the expression.

$\sum xy = 2594$

Sum up the values of x^2.

$\sum x^2 = (29)^2 + (26)^2 + (31)^2$

Simplify the expression.

$\sum x^2 = 2478$

Sum up the values of y^2.

$\sum y^2 = (28)^2 + (28)^2 + (34)^2$

Problem 1 (Page 3)

Simplify the expression.

$\sum y^2 = 2724$

Fill in the computed values.

$$r = \frac{3(2594)-(86)(90)}{\sqrt{3(2478)-(86)^2} \cdot \sqrt{3(2724)-(90)^2}}$$

Simplify the expression.

$r = 0.803$

Problem 1

x	y
33	16
34	25
31	18
31	15
36	24

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=33+34+31+31+36$$

Simplify the expression.

$$\sum x=165$$

Sum up the values of the second column of data (y).

Problem 1 (Page 2)

$\sum y = 16 + 25 + 18 + 15 + 24$

Simplify the expression.

$\sum y = 98$

Sum up the values of $x \cdot y$.

$\sum xy = 33 \cdot 16 + 34 \cdot 25 + 31 \cdot 18 + 31 \cdot 15 + 36 \cdot 24$

Simplify the expression.

$\sum xy = 3265$

Sum up the values of x^2.

$\sum x^2 = (33)^2 + (34)^2 + (31)^2 + (31)^2 + (36)^2$

Simplify the expression.

$\sum x^2 = 5463$

Sum up the values of y^2.

Problem 1 (Page 3)

$$\sum y^2 = (16)^2 + (25)^2 + (18)^2 + (15)^2 + (24)^2$$

Simplify the expression.

$$\sum y^2 = 2006$$

Fill in the computed values.

$$r = \frac{5(3265) - (165)(98)}{\sqrt{5(5463) - (165)^2} \cdot \sqrt{5(2006) - (98)^2}}$$

Simplify the expression.

$r = 0.7916$

Problem 1

x	y
8	21
5	19
5	32
4	34
6	18
4	32
4	26

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=8+5+5+4+6+4+4$$

Simplify the expression.

$$\sum x=36$$

Problem 1 (Page 2)

Sum up the values of the second column of data (y).

$$\sum y = 21 + 19 + 32 + 34 + 18 + 32 + 26$$

Simplify the expression.

$$\sum y = 182$$

Sum up the values of x • y.

$$\sum xy = 8 \cdot 21 + 5 \cdot 19 + 5 \cdot 32 + 4 \cdot 34 + 6 \cdot 18 + 4 \cdot 32 + 4 \cdot 26$$

Simplify the expression.

$$\sum xy = 899$$

Sum up the values of x^2.

$$\sum x^2 = (8)^2 + (5)^2 + (5)^2 + (4)^2 + (6)^2 + (4)^2 + (4)^2$$

Simplify the expression.

$$\sum x^2 = 198$$

Problem 1 (Page 3)

Sum up the values of y^2.

$$\sum y^2=(21)^2+(19)^2+(32)^2+(34)^2+(18)^2+(32)^2+(26)^2$$

Simplify the expression.

$$\sum y^2=5006$$

Fill in the computed values.

$$r=\frac{7(899)-(36)(182)}{\sqrt{7(198)-(36)^2}\cdot\sqrt{7(5006)-(182)^2}}$$

Simplify the expression.

$$r=-0.6234$$

Problem 2

x	y
9	5
8	6
6	6
9	7
6	4

The slope of the best fit regression line can be found using the formula

$$m = n\left(\sum xy\right) - \frac{\left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}.$$

$$m = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}$$

The y-intercept of the best fit regression line can be found using the formula $b = \left(\sum y\right)\left(\sum x^2\right) - \frac{\left(\sum x\right)\left(\sum xy\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}$.

Problem 2 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=9+8+6+9+6$$

Simplify the expression.

$$\sum x=38$$

Sum up the values of the second column of data (y).

$$\sum y=5+6+6+7+4$$

Simplify the expression.

$$\sum y=28$$

Sum up the values of $x \cdot y$.

$$\sum xy=9\cdot 5+8\cdot 6+6\cdot 6+9\cdot 7+6\cdot 4$$

Problem 2 (Page 3)

Simplify the expression.

$$\sum xy = 216$$

Sum up the values of x^2.

$$\sum x^2 = (9)^2 + (8)^2 + (6)^2 + (9)^2 + (6)^2$$

Simplify the expression.

$$\sum x^2 = 298$$

Sum up the values of y^2.

$$\sum y^2 = (5)^2 + (6)^2 + (6)^2 + (7)^2 + (4)^2$$

Simplify the expression.

$$\sum y^2 = 162$$

Fill in the computed values.

$$m = \frac{5(216) - (38)(28)}{5(298) - (38)^2}$$

Simplify the expression.

Problem 2 (Page 4)

$m=0.3478$

Fill in the computed values.

$$b=\frac{(28)(298)-(38)(216)}{5(298)-(38)^2}$$

Simplify the expression.

$b=2.9565$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.3478x+2.9565$

Problem 1

x	y
20	30
39	37
39	31
22	35
22	33
23	38

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = (\sum y)(\sum x^2) - \frac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}.$

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=20+39+39+22+22+23$$

Simplify the expression.

$$\sum x=165$$

Sum up the values of the second column of data (y).

$$\sum y=30+37+31+35+33+38$$

Simplify the expression.

$$\sum y=204$$

Sum up the values of $x \cdot y$.

$$\sum xy=20\cdot 30+39\cdot 37+39\cdot 31+22\cdot 35+22\cdot 33+23\cdot 38$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 5622$$

Sum up the values of x^2.

$$\sum x^2 = (20)^2 + (39)^2 + (39)^2 + (22)^2 + (22)^2 + (23)^2$$

Simplify the expression.

$$\sum x^2 = 4939$$

Sum up the values of y^2.

$$\sum y^2 = (30)^2 + (37)^2 + (31)^2 + (35)^2 + (33)^2 + (38)^2$$

Simplify the expression.

$$\sum y^2 = 6988$$

Fill in the computed values.

$$m = \frac{6(5622) - (165)(204)}{6(4939) - (165)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.0299$

Fill in the computed values.

$$b=\frac{(204)(4939)-(165)(5622)}{6(4939)-(165)^2}$$

Simplify the expression.

$b=33.1781$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.0299x+33.1781$

Problem 1

x	y
9	13
11	29
7	28
14	19

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=9+11+7+14$$

Simplify the expression.

$$\sum x=41$$

Sum up the values of the second column of data (y).

$$\sum y=13+29+28+19$$

Simplify the expression.

$$\sum y=89$$

Sum up the values of $x\cdot y$.

$$\sum xy=9\cdot 13+11\cdot 29+7\cdot 28+14\cdot 19$$

Problem 1 (Page 3)

Simplify the expression.

$\sum xy = 898$

Sum up the values of x^2.

$\sum x^2 = (9)^2 + (11)^2 + (7)^2 + (14)^2$

Simplify the expression.

$\sum x^2 = 447$

Sum up the values of y^2.

$\sum y^2 = (13)^2 + (29)^2 + (28)^2 + (19)^2$

Simplify the expression.

$\sum y^2 = 2155$

Fill in the computed values.

$$m = \frac{4(898) - (41)(89)}{4(447) - (41)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=-0.5327$

Fill in the computed values.

$$b=\frac{(89)(447)-(41)(898)}{4(447)-(41)^2}$$

Simplify the expression.

$b=27.7103$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.5327x+27.7103$

Problem 1

x	y
22	8
28	4
32	12
36	8
30	14
20	10
30	8

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}.$

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$\sum x=22+28+32+36+30+20+30$

Simplify the expression.

$\sum x=198$

Sum up the values of the second column of data (y).

$\sum y=8+4+12+8+14+10+8$

Simplify the expression.

$\sum y=64$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 22 \cdot 8 + 28 \cdot 4 + 32 \cdot 12 + 36 \cdot 8 + 30 \cdot 14 + 20 \cdot 10 + 30 \cdot 8$$

Simplify the expression.

$$\sum xy = 1820$$

Sum up the values of x^2.

$$\sum x^2 = (22)^2 + (28)^2 + (32)^2 + (36)^2 + (30)^2 + (20)^2 + (30)^2$$

Simplify the expression.

$$\sum x^2 = 5788$$

Sum up the values of y^2.

$$\sum y^2 = (8)^2 + (4)^2 + (12)^2 + (8)^2 + (14)^2 + (10)^2 + (8)^2$$

Simplify the expression.

$$\sum y^2 = 648$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{7(1820)-(198)(64)}{7(5788)-(198)^2}$$

Simplify the expression.

$m=0.0518$

Fill in the computed values.

$$b=\frac{(64)(5788)-(198)(1820)}{7(5788)-(198)^2}$$

Simplify the expression.

$b=7.6768$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.0518x+7.6768$

Problem 1

x	y
31	25
25	29
20	32
19	30
14	32
19	30
27	28
26	39

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=31+25+20+19+14+19+27+26$$

Simplify the expression.

$$\sum x=181$$

Sum up the values of the second column of data (y).

$$\sum y=25+29+32+30+32+30+28+39$$

Simplify the expression.

$$\sum y=245$$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 31\cdot 25 + 25\cdot 29 + 20\cdot 32 + 19\cdot 30 + 14\cdot 32 + 19\cdot 30 + 27\cdot 28 + 26\cdot 39$$

Simplify the expression.

$$\sum xy = 5498$$

Sum up the values of x^2.

$$\sum x^2 = (31)^2 + (25)^2 + (20)^2 + (19)^2 + (14)^2 + (19)^2 + (27)^2 + (26)^2$$

Simplify the expression.

$$\sum x^2 = 4309$$

Sum up the values of y^2.

$$\sum y^2 = (25)^2 + (29)^2 + (32)^2 + (30)^2 + (32)^2 + (30)^2 + (28)^2 + (39)^2$$

Simplify the expression.

$$\sum y^2 = 7619$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{8(5498)-(181)(245)}{8(4309)-(181)^2}$$

Simplify the expression.

$m=-0.211$

Fill in the computed values.

$$b=\frac{(245)(4309)-(181)(5498)}{8(4309)-(181)^2}$$

Simplify the expression.

$b=35.3986$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.211x+35.3986$

Problem 1

x	y
5	9
4	6
4	9
7	9
6	11

The slope of the best fit regression line can be found using the formula

$$m = n\left(\sum xy\right) - \frac{\left(\sum x\right)\left(\sum y\right)}{(n\left(\sum x^2\right) - \left(\sum x\right)^2}.$$

$$m = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{(n\left(\sum x^2\right) - \left(\sum x\right)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = \left(\sum y\right)\left(\sum x^2\right) - \frac{\left(\sum x\right)\left(\sum xy\right)}{(n\left(\sum x^2\right) - \left(\sum x\right)^2}.$

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=5+4+4+7+6$$

Simplify the expression.

$$\sum x=26$$

Sum up the values of the second column of data (y).

$$\sum y=9+6+9+9+11$$

Simplify the expression.

$$\sum y=44$$

Sum up the values of $x\cdot y$.

$$\sum xy=5\cdot 9+4\cdot 6+4\cdot 9+7\cdot 9+6\cdot 11$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 234$$

Sum up the values of x^2.

$$\sum x^2 = (5)^2 + (4)^2 + (4)^2 + (7)^2 + (6)^2$$

Simplify the expression.

$$\sum x^2 = 142$$

Sum up the values of y^2.

$$\sum y^2 = (9)^2 + (6)^2 + (9)^2 + (9)^2 + (11)^2$$

Simplify the expression.

$$\sum y^2 = 400$$

Fill in the computed values.

$$m = \frac{5(234) - (26)(44)}{5(142) - (26)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.7647$

Fill in the computed values.

$$b=\frac{(44)(142)-(26)(234)}{5(142)-(26)^2}$$

Simplify the expression.

$b=4.8235$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.7647x+4.8235$

Problem 1

x	y
11	11
16	10
9	13
15	13
16	16

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=11+16+9+15+16$$

Simplify the expression.

$$\sum x=67$$

Sum up the values of the second column of data (y).

$$\sum y=11+10+13+13+16$$

Simplify the expression.

$$\sum y=63$$

Sum up the values of $x \cdot y$.

$$\sum xy=11\cdot 11+16\cdot 10+9\cdot 13+15\cdot 13+16\cdot 16$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 849$$

Sum up the values of x^2.

$$\sum x^2 = (11)^2 + (16)^2 + (9)^2 + (15)^2 + (16)^2$$

Simplify the expression.

$$\sum x^2 = 939$$

Sum up the values of y^2.

$$\sum y^2 = (11)^2 + (10)^2 + (13)^2 + (13)^2 + (16)^2$$

Simplify the expression.

$$\sum y^2 = 815$$

Fill in the computed values.

$$m = \frac{5(849) - (67)(63)}{5(939) - (67)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.1165$

Fill in the computed values.

$$b=\frac{(63)(939)-(67)(849)}{5(939)-(67)^2}$$

Simplify the expression.

$b=11.0388$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.1165x+11.0388$

Problem 1

x	y
27	29
27	28
27	32
29	27
29	33
27	32
27	27
33	24
33	30

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}.$

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=27+27+27+29+29+27+27+33+33$$

Simplify the expression.

$$\sum x=259$$

Sum up the values of the second column of data (y).

$$\sum y=29+28+32+27+33+32+27+24+30$$

Simplify the expression.

$$\sum y=262$$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$\sum xy = 27 \cdot 29 + 27 \cdot 28 + 27 \cdot 32 + 29 \cdot 27 + 29 \cdot 33 + 27 \cdot 32 + 27 \cdot 27 + 33 \cdot 24 + 33 \cdot 30$

Simplify the expression.

$\sum xy = 7518$

Sum up the values of x^2.

$\sum x^2 = (27)^2 + (27)^2 + (27)^2 + (29)^2 + (29)^2 + (27)^2 + (27)^2 + (33)^2 + (33)^2$

Simplify the expression.

$\sum x^2 = 7505$

Sum up the values of y^2.

$\sum y^2 = (29)^2 + (28)^2 + (32)^2 + (27)^2 + (33)^2 + (32)^2 + (27)^2 + (24)^2 + (30)^2$

Simplify the expression.

$\sum y^2 = 7696$

Problem 1 (Page 4)

Fill in the computed values.

$$m=\frac{9(7518)-(259)(262)}{9(7505)-(259)^2}$$

Simplify the expression.

$m=-0.4224$

Fill in the computed values.

$$b=\frac{(262)(7505)-(259)(7518)}{9(7505)-(259)^2}$$

Simplify the expression.

$b=41.2672$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.4224x+41.2672$

Problem 1

x	y
2	13
7	11
4	7
2	10
5	13
2	10
2	8

The slope of the best fit regression line can be found using the formula

$$m=n\left(\sum xy\right)-\frac{\left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right)-\left(\sum x\right)^2\right.}.$$

$$m=\frac{n\left(\sum xy\right)-\left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right)-\left(\sum x\right)^2\right.}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$\sum x=2+7+4+2+5+2+2$

Simplify the expression.

$\sum x=24$

Sum up the values of the second column of data (y).

$\sum y=13+11+7+10+13+10+8$

Simplify the expression.

$\sum y=72$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 2 \cdot 13 + 7 \cdot 11 + 4 \cdot 7 + 2 \cdot 10 + 5 \cdot 13 + 2 \cdot 10 + 2 \cdot 8$$

Simplify the expression.

$$\sum xy = 252$$

Sum up the values of x^2.

$$\sum x^2 = (2)^2 + (7)^2 + (4)^2 + (2)^2 + (5)^2 + (2)^2 + (2)^2$$

Simplify the expression.

$$\sum x^2 = 106$$

Sum up the values of y^2.

$$\sum y^2 = (13)^2 + (11)^2 + (7)^2 + (10)^2 + (13)^2 + (10)^2 + (8)^2$$

Simplify the expression.

$$\sum y^2 = 772$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{7(252)-(24)(72)}{7(106)-(24)^2}$$

Simplify the expression.

$m=0.2169$

Fill in the computed values.

$$b=\frac{(72)(106)-(24)(252)}{7(106)-(24)^2}$$

Simplify the expression.

$b=9.5422$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.2169x+9.5422$

Problem 1

x	y
32	29
33	27
30	15

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = (\sum y)(\sum x^2) - \frac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}.$

$$b = \frac{(\sum y)(\sum x^2) - (\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}$$

Problem 1 (Page 2)

Sum up the values of the first column of data (x).

$$\sum x = 32 + 33 + 30$$

Simplify the expression.

$$\sum x = 95$$

Sum up the values of the second column of data (y).

$$\sum y = 29 + 27 + 15$$

Simplify the expression.

$$\sum y = 71$$

Sum up the values of $x \cdot y$.

$$\sum xy = 32 \cdot 29 + 33 \cdot 27 + 30 \cdot 15$$

Simplify the expression.

$$\sum xy = 2269$$

Problem 1 (Page 3)

Sum up the values of x^2.

$$\sum x^2 = (32)^2 + (33)^2 + (30)^2$$

Simplify the expression.

$$\sum x^2 = 3013$$

Sum up the values of y^2.

$$\sum y^2 = (29)^2 + (27)^2 + (15)^2$$

Simplify the expression.

$$\sum y^2 = 1795$$

Fill in the computed values.

$$m = \frac{3(2269) - (95)(71)}{3(3013) - (95)^2}$$

Simplify the expression.

$$m = 4.4286$$

Fill in the computed values.

Problem 1 (Page 4)

$$b=\frac{(71)(3013)-(95)(2269)}{3(3013)-(95)^2}$$

Simplify the expression.

$b=-116.5714$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=4.4286x+-116.5714$

Problem 1

x	y
13	21
11	22
10	21
12	18
11	22
13	20
13	21
10	20

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=13+11+10+12+11+13+13+10$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 93$

Sum up the values of the second column of data (y).

$\sum y = 21 + 22 + 21 + 18 + 22 + 20 + 21 + 20$

Simplify the expression.

$\sum y = 165$

Sum up the values of $x \cdot y$.

$\sum xy = 13 \cdot 21 + 11 \cdot 22 + 10 \cdot 21 + 12 \cdot 18 + 11 \cdot 22 + 13 \cdot 20 + 13 \cdot 21 + 10 \cdot 20$

Simplify the expression.

$\sum xy = 1916$

Sum up the values of x^2.

$\sum x^2 = (13)^2 + (11)^2 + (10)^2 + (12)^2 + (11)^2 + (13)^2 + (13)^2 + (10)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 1093$

Sum up the values of y^2.

$\sum y^2 = (21)^2 + (22)^2 + (21)^2 + (18)^2 + (22)^2 + (20)^2 + (21)^2 + (20)^2$

Simplify the expression.

$\sum y^2 = 3415$

Fill in the computed values.

$$r = \frac{8(1916) - (93)(165)}{\sqrt{8(1093) - (93)^2} \cdot \sqrt{8(3415) - (165)^2}}$$

Simplify the expression.

$r = -0.1789$

Problem 1

x	y
53	32
55	36
44	38

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=53+55+44$$

Simplify the expression.

$$\sum x=152$$

Sum up the values of the second column of data (y).

$$\sum y=32+36+38$$

Problem 1 (Page 2)

Simplify the expression.

$\sum y = 106$

Sum up the values of $x \cdot y$.

$\sum xy = 53 \cdot 32 + 55 \cdot 36 + 44 \cdot 38$

Simplify the expression.

$\sum xy = 5348$

Sum up the values of x^2.

$\sum x^2 = (53)^2 + (55)^2 + (44)^2$

Simplify the expression.

$\sum x^2 = 7770$

Sum up the values of y^2.

$\sum y^2 = (32)^2 + (36)^2 + (38)^2$

Problem 1 (Page 3)

Simplify the expression.

$\sum y^2 = 3764$

Fill in the computed values.

$$r = \frac{3(5348) - (152)(106)}{\sqrt{3(7770) - (152)^2} \cdot \sqrt{3(3764) - (106)^2}}$$

Simplify the expression.

$r = -0.6331$

Problem 1

x	y
16	16
7	18
13	25
13	18
10	20
9	14
12	14
9	26

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=16+7+13+13+10+9+12+9$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x=89$

Sum up the values of the second column of data (y).

$\sum y=16+18+25+18+20+14+14+26$

Simplify the expression.

$\sum y=151$

Sum up the values of $x \cdot y$.

$\sum xy=16\cdot16+7\cdot18+13\cdot25+13\cdot18+10\cdot20+9\cdot14+12\cdot14+9\cdot26$

Simplify the expression.

$\sum xy=1669$

Sum up the values of x^2.

$\sum x^2=(16)^2+(7)^2+(13)^2+(13)^2+(10)^2+(9)^2+(12)^2+(9)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 1049$

Sum up the values of y^2.

$\sum y^2 = (16)^2 + (18)^2 + (25)^2 + (18)^2 + (20)^2 + (14)^2 + (14)^2 + (26)^2$

Simplify the expression.

$\sum y^2 = 2997$

Fill in the computed values.

$$r = \frac{8(1669) - (89)(151)}{\sqrt{8(1049) - (89)^2} \cdot \sqrt{8(2997) - (151)^2}}$$

Simplify the expression.

$r = -0.1169$

Problem 1

x	y
22	20
9	24
11	21
21	23
26	20
14	24
21	22
11	23

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=22+9+11+21+26+14+21+11$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 135$

Sum up the values of the second column of data (y).

$\sum y = 20 + 24 + 21 + 23 + 20 + 24 + 22 + 23$

Simplify the expression.

$\sum y = 177$

Sum up the values of $x \cdot y$.

$\sum xy = 22 \cdot 20 + 9 \cdot 24 + 11 \cdot 21 + 21 \cdot 23 + 26 \cdot 20 + 14 \cdot 24 + 21 \cdot 22 + 11 \cdot 23$

Simplify the expression.

$\sum xy = 2941$

Sum up the values of x^2.

$\sum x^2 = (22)^2 + (9)^2 + (11)^2 + (21)^2 + (26)^2 + (14)^2 + (21)^2 + (11)^2$

Simplify the expression.

Problem 1 (Page 3)

$$\sum x^2 = 2561$$

Sum up the values of y^2.

$$\sum y^2 = (20)^2 + (24)^2 + (21)^2 + (23)^2 + (20)^2 + (24)^2 + (22)^2 + (23)^2$$

Simplify the expression.

$$\sum y^2 = 3935$$

Fill in the computed values.

$$r = \frac{8(2941) - (135)(177)}{\sqrt{8(2561) - (135)^2} \cdot \sqrt{8(3935) - (177)^2}}$$

Simplify the expression.

$$r = -0.6278$$

Problem 1

x	y
26	21
27	23
30	21
23	24
24	23
21	24
27	22
30	24

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=26+27+30+23+24+21+27+30$$

Simplify the expression.

Problem 1 (Page 2)

$\sum x = 208$

Sum up the values of the second column of data (y).

$\sum y = 21 + 23 + 21 + 24 + 23 + 24 + 22 + 24$

Simplify the expression.

$\sum y = 182$

Sum up the values of $x \cdot y$.

$\sum xy = 26 \cdot 21 + 27 \cdot 23 + 30 \cdot 21 + 23 \cdot 24 + 24 \cdot 23 + 21 \cdot 24 + 27 \cdot 22 + 30 \cdot 24$

Simplify the expression.

$\sum xy = 4719$

Sum up the values of x^2.

$\sum x^2 = (26)^2 + (27)^2 + (30)^2 + (23)^2 + (24)^2 + (21)^2 + (27)^2 + (30)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 5480$

Sum up the values of y^2.

$\sum y^2 = (21)^2 + (23)^2 + (21)^2 + (24)^2 + (23)^2 + (24)^2 + (22)^2 + (24)^2$

Simplify the expression.

$\sum y^2 = 4152$

Fill in the computed values.

$$r = \frac{8(4719) - (208)(182)}{\sqrt{8(5480) - (208)^2} \cdot \sqrt{8(4152) - (182)^2}}$$

Simplify the expression.

$r = -0.4518$

Problem 1

x	y
31	13
42	10
42	14
33	15
32	11
35	16
43	14

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=31+42+42+33+32+35+43$$

Simplify the expression.

$$\sum x=258$$

Problem 1 (Page 2)

Sum up the values of the second column of data (y).

$$\sum y = 13 + 10 + 14 + 15 + 11 + 16 + 14$$

Simplify the expression.

$$\sum y = 93$$

Sum up the values of $x \cdot y$.

$$\sum xy = 31 \cdot 13 + 42 \cdot 10 + 42 \cdot 14 + 33 \cdot 15 + 32 \cdot 11 + 35 \cdot 16 + 43 \cdot 14$$

Simplify the expression.

$$\sum xy = 3420$$

Sum up the values of x^2.

$$\sum x^2 = (31)^2 + (42)^2 + (42)^2 + (33)^2 + (32)^2 + (35)^2 + (43)^2$$

Simplify the expression.

$$\sum x^2 = 9676$$

Problem 1 (Page 3)

Sum up the values of y^2.

$$\sum y^2=(13)^2+(10)^2+(14)^2+(15)^2+(11)^2+(16)^2+(14)^2$$

Simplify the expression.

$$\sum y^2=1263$$

Fill in the computed values.

$$r=\frac{7(3420)-(258)(93)}{\sqrt{7(9676)-(258)^2}\cdot\sqrt{7(1263)-(93)^2}}$$

Simplify the expression.

$$r=-0.114$$

Problem 1

x	y
7	27
12	22
10	24
8	26
10	21
12	22
9	22
11	23
7	25

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=7+12+10+8+10+12+9+11+7$$

Problem 1 (Page 2)

Simplify the expression.

$\sum x=86$

Sum up the values of the second column of data (y).

$\sum y=27+22+24+26+21+22+22+23+25$

Simplify the expression.

$\sum y=212$

Sum up the values of $x \cdot y$.

$\sum xy=7\cdot 27+12\cdot 22+10\cdot 24+8\cdot 26+10\cdot 21+12\cdot 22+9\cdot 22+11\cdot 23+7\cdot 25$

Simplify the expression.

$\sum xy=2001$

Sum up the values of x^2.

$\sum x^2=(7)^2+(12)^2+(10)^2+(8)^2+(10)^2+(12)^2+(9)^2+(11)^2+(7)^2$

Simplify the expression.

Problem 1 (Page 3)

$\sum x^2 = 852$

Sum up the values of y^2.

$\sum y^2 = (27)^2 + (22)^2 + (24)^2 + (26)^2 + (21)^2 + (22)^2 + (22)^2 + (23)^2 + (25)^2$

Simplify the expression.

$\sum y^2 = 5028$

Fill in the computed values.

$$r = \frac{9(2001) - (86)(212)}{\sqrt{9(852) - (86)^2} \cdot \sqrt{9(5028) - (212)^2}}$$

Simplify the expression.

$r = -0.7705$

Problem 1

x	y
16	15
14	11
28	8
11	10

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=16+14+28+11$$

Simplify the expression.

$$\sum x=69$$

Sum up the values of the second column of data (y).

Problem 1 (Page 2)

$\sum y = 15 + 11 + 8 + 10$

Simplify the expression.

$\sum y = 44$

Sum up the values of $x \cdot y$.

$\sum xy = 16 \cdot 15 + 14 \cdot 11 + 28 \cdot 8 + 11 \cdot 10$

Simplify the expression.

$\sum xy = 728$

Sum up the values of x^2.

$\sum x^2 = (16)^2 + (14)^2 + (28)^2 + (11)^2$

Simplify the expression.

$\sum x^2 = 1357$

Sum up the values of y^2.

Problem 1 (Page 3)

$$\sum y^2 = (15)^2 + (11)^2 + (8)^2 + (10)^2$$

Simplify the expression.

$$\sum y^2 = 510$$

Fill in the computed values.

$$r = \frac{4(728) - (69)(44)}{\sqrt{4(1357) - (69)^2} \cdot \sqrt{4(510) - (44)^2}}$$

Simplify the expression.

$r = -0.4708$

Problem 1

x	y
29	28
26	28
31	34

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=29+26+31$$

Simplify the expression.

$$\sum x=86$$

Sum up the values of the second column of data (y).

$$\sum y=28+28+34$$

Problem 1 (Page 2)

Simplify the expression.

$\sum y = 90$

Sum up the values of $x \cdot y$.

$\sum xy = 29 \cdot 28 + 26 \cdot 28 + 31 \cdot 34$

Simplify the expression.

$\sum xy = 2594$

Sum up the values of x^2.

$\sum x^2 = (29)^2 + (26)^2 + (31)^2$

Simplify the expression.

$\sum x^2 = 2478$

Sum up the values of y^2.

$\sum y^2 = (28)^2 + (28)^2 + (34)^2$

Problem 1 (Page 3)

Simplify the expression.

$\sum y^2 = 2724$

Fill in the computed values.

$$r = \frac{3(2594) - (86)(90)}{\sqrt{3(2478) - (86)^2} \cdot \sqrt{3(2724) - (90)^2}}$$

Simplify the expression.

$r = 0.803$

Problem 1

x	y
33	16
34	25
31	18
31	15
36	24

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=33+34+31+31+36$$

Simplify the expression.

$$\sum x=165$$

Sum up the values of the second column of data (y).

Problem 1 (Page 2)

$\sum y = 16 + 25 + 18 + 15 + 24$

Simplify the expression.

$\sum y = 98$

Sum up the values of $x \cdot y$.

$\sum xy = 33 \cdot 16 + 34 \cdot 25 + 31 \cdot 18 + 31 \cdot 15 + 36 \cdot 24$

Simplify the expression.

$\sum xy = 3265$

Sum up the values of x^2.

$\sum x^2 = (33)^2 + (34)^2 + (31)^2 + (31)^2 + (36)^2$

Simplify the expression.

$\sum x^2 = 5463$

Sum up the values of y^2.

Problem 1 (Page 3)

$$\sum y^2=(16)^2+(25)^2+(18)^2+(15)^2+(24)^2$$

Simplify the expression.

$$\sum y^2=2006$$

Fill in the computed values.

$$r=\frac{5(3265)-(165)(98)}{\sqrt{5(5463)-(165)^2}\cdot\sqrt{5(2006)-(98)^2}}$$

Simplify the expression.

$r=0.7916$

Problem 1

x	y
8	21
5	19
5	32
4	34
6	18
4	32
4	26

The linear correlation coefficient measures the relationship between the paired values in a sample.

$$r=\frac{n(\sum xy)-(\sum x)(\sum y)}{\sqrt{n(\sum x^2)-(\sum x)^2}\cdot\sqrt{n(\sum y^2)-(\sum y)^2}}$$

Sum up the values of the first column of data (x).

$$\sum x=8+5+5+4+6+4+4$$

Simplify the expression.

$$\sum x=36$$

Problem 1 (Page 2)

Sum up the values of the second column of data (y).

$$\sum y = 21 + 19 + 32 + 34 + 18 + 32 + 26$$

Simplify the expression.

$$\sum y = 182$$

Sum up the values of x • y.

$$\sum xy = 8 \cdot 21 + 5 \cdot 19 + 5 \cdot 32 + 4 \cdot 34 + 6 \cdot 18 + 4 \cdot 32 + 4 \cdot 26$$

Simplify the expression.

$$\sum xy = 899$$

Sum up the values of x^2.

$$\sum x^2 = (8)^2 + (5)^2 + (5)^2 + (4)^2 + (6)^2 + (4)^2 + (4)^2$$

Simplify the expression.

$$\sum x^2 = 198$$

Problem 1 (Page 3)

Sum up the values of y^2.

$$\sum y^2=(21)^2+(19)^2+(32)^2+(34)^2+(18)^2+(32)^2+(26)^2$$

Simplify the expression.

$$\sum y^2=5006$$

Fill in the computed values.

$$r=\frac{7(899)-(36)(182)}{\sqrt{7(198)-(36)^2}\cdot\sqrt{7(5006)-(182)^2}}$$

Simplify the expression.

$$r=-0.6234$$

Problem 2

x	y
9	5
8	6
6	6
9	7
6	4

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = (\sum y)(\sum x^2) - \frac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}.$

Problem 2 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=9+8+6+9+6$$

Simplify the expression.

$$\sum x=38$$

Sum up the values of the second column of data (y).

$$\sum y=5+6+6+7+4$$

Simplify the expression.

$$\sum y=28$$

Sum up the values of $x\cdot y$.

$$\sum xy=9\cdot5+8\cdot6+6\cdot6+9\cdot7+6\cdot4$$

Problem 2 (Page 3)

Simplify the expression.

$$\sum xy = 216$$

Sum up the values of x^2.

$$\sum x^2 = (9)^2 + (8)^2 + (6)^2 + (9)^2 + (6)^2$$

Simplify the expression.

$$\sum x^2 = 298$$

Sum up the values of y^2.

$$\sum y^2 = (5)^2 + (6)^2 + (6)^2 + (7)^2 + (4)^2$$

Simplify the expression.

$$\sum y^2 = 162$$

Fill in the computed values.

$$m = \frac{5(216) - (38)(28)}{5(298) - (38)^2}$$

Simplify the expression.

Problem 2 (Page 4)

$m=0.3478$

Fill in the computed values.

$$b=\frac{(28)(298)-(38)(216)}{5(298)-(38)^2}$$

Simplify the expression.

$b=2.9565$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.3478x+2.9565$

Problem 1

x	y
20	30
39	37
39	31
22	35
22	33
23	38

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=20+39+39+22+22+23$$

Simplify the expression.

$$\sum x=165$$

Sum up the values of the second column of data (y).

$$\sum y=30+37+31+35+33+38$$

Simplify the expression.

$$\sum y=204$$

Sum up the values of $x \cdot y$.

$$\sum xy=20\cdot 30+39\cdot 37+39\cdot 31+22\cdot 35+22\cdot 33+23\cdot 38$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 5622$$

Sum up the values of x^2.

$$\sum x^2 = (20)^2 + (39)^2 + (39)^2 + (22)^2 + (22)^2 + (23)^2$$

Simplify the expression.

$$\sum x^2 = 4939$$

Sum up the values of y^2.

$$\sum y^2 = (30)^2 + (37)^2 + (31)^2 + (35)^2 + (33)^2 + (38)^2$$

Simplify the expression.

$$\sum y^2 = 6988$$

Fill in the computed values.

$$m = \frac{6(5622) - (165)(204)}{6(4939) - (165)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.0299$

Fill in the computed values.

$$b=\frac{(204)(4939)-(165)(5622)}{6(4939)-(165)^2}$$

Simplify the expression.

$b=33.1781$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.0299x+33.1781$

Problem 1

x	y
9	13
11	29
7	28
14	19

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=9+11+7+14$$

Simplify the expression.

$$\sum x=41$$

Sum up the values of the second column of data (y).

$$\sum y=13+29+28+19$$

Simplify the expression.

$$\sum y=89$$

Sum up the values of $x \cdot y$.

$$\sum xy=9\cdot 13+11\cdot 29+7\cdot 28+14\cdot 19$$

Problem 1 (Page 3)

Simplify the expression.

$\sum xy = 898$

Sum up the values of x^2.

$\sum x^2 = (9)^2 + (11)^2 + (7)^2 + (14)^2$

Simplify the expression.

$\sum x^2 = 447$

Sum up the values of y^2.

$\sum y^2 = (13)^2 + (29)^2 + (28)^2 + (19)^2$

Simplify the expression.

$\sum y^2 = 2155$

Fill in the computed values.

$$m = \frac{4(898) - (41)(89)}{4(447) - (41)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=-0.5327$

Fill in the computed values.

$$b=\frac{(89)(447)-(41)(898)}{4(447)-(41)^2}$$

Simplify the expression.

$b=27.7103$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.5327x+27.7103$

Problem 1

x	y
22	8
28	4
32	12
36	8
30	14
20	10
30	8

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$\sum x=22+28+32+36+30+20+30$

Simplify the expression.

$\sum x=198$

Sum up the values of the second column of data (y).

$\sum y=8+4+12+8+14+10+8$

Simplify the expression.

$\sum y=64$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 22 \cdot 8 + 28 \cdot 4 + 32 \cdot 12 + 36 \cdot 8 + 30 \cdot 14 + 20 \cdot 10 + 30 \cdot 8$$

Simplify the expression.

$$\sum xy = 1820$$

Sum up the values of x^2.

$$\sum x^2 = (22)^2 + (28)^2 + (32)^2 + (36)^2 + (30)^2 + (20)^2 + (30)^2$$

Simplify the expression.

$$\sum x^2 = 5788$$

Sum up the values of y^2.

$$\sum y^2 = (8)^2 + (4)^2 + (12)^2 + (8)^2 + (14)^2 + (10)^2 + (8)^2$$

Simplify the expression.

$$\sum y^2 = 648$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{7(1820)-(198)(64)}{7(5788)-(198)^2}$$

Simplify the expression.

$m=0.0518$

Fill in the computed values.

$$b=\frac{(64)(5788)-(198)(1820)}{7(5788)-(198)^2}$$

Simplify the expression.

$b=7.6768$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.0518x+7.6768$

Problem 1

x	y
31	25
25	29
20	32
19	30
14	32
19	30
27	28
26	39

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}.$

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$\sum x=31+25+20+19+14+19+27+26$

Simplify the expression.

$\sum x=181$

Sum up the values of the second column of data (y).

$\sum y=25+29+32+30+32+30+28+39$

Simplify the expression.

$\sum y=245$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 31 \cdot 25 + 25 \cdot 29 + 20 \cdot 32 + 19 \cdot 30 + 14 \cdot 32 + 19 \cdot 30 + 27 \cdot 28 + 26 \cdot 39$$

Simplify the expression.

$$\sum xy = 5498$$

Sum up the values of x^2.

$$\sum x^2 = (31)^2 + (25)^2 + (20)^2 + (19)^2 + (14)^2 + (19)^2 + (27)^2 + (26)^2$$

Simplify the expression.

$$\sum x^2 = 4309$$

Sum up the values of y^2.

$$\sum y^2 = (25)^2 + (29)^2 + (32)^2 + (30)^2 + (32)^2 + (30)^2 + (28)^2 + (39)^2$$

Simplify the expression.

$$\sum y^2 = 7619$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{8(5498)-(181)(245)}{8(4309)-(181)^2}$$

Simplify the expression.

$m=-0.211$

Fill in the computed values.

$$b=\frac{(245)(4309)-(181)(5498)}{8(4309)-(181)^2}$$

Simplify the expression.

$b=35.3986$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.211x+35.3986$

Problem 1

x	y
5	9
4	6
4	9
7	9
6	11

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = (\sum y)(\sum x^2) - \frac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}.$

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=5+4+4+7+6$$

Simplify the expression.

$$\sum x=26$$

Sum up the values of the second column of data (y).

$$\sum y=9+6+9+9+11$$

Simplify the expression.

$$\sum y=44$$

Sum up the values of $x\cdot y$.

$$\sum xy=5\cdot 9+4\cdot 6+4\cdot 9+7\cdot 9+6\cdot 11$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 234$$

Sum up the values of x^2.

$$\sum x^2 = (5)^2 + (4)^2 + (4)^2 + (7)^2 + (6)^2$$

Simplify the expression.

$$\sum x^2 = 142$$

Sum up the values of y^2.

$$\sum y^2 = (9)^2 + (6)^2 + (9)^2 + (9)^2 + (11)^2$$

Simplify the expression.

$$\sum y^2 = 400$$

Fill in the computed values.

$$m = \frac{5(234) - (26)(44)}{5(142) - (26)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.7647$

Fill in the computed values.

$$b=\frac{(44)(142)-(26)(234)}{5(142)-(26)^2}$$

Simplify the expression.

$b=4.8235$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.7647x+4.8235$

Problem 1

x	y
11	11
16	10
9	13
15	13
16	16

The slope of the best fit regression line can be found using the formula

$$m = n(\sum xy) - \frac{(\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}.$$

$$m = \frac{n(\sum xy) - (\sum x)(\sum y)}{(n(\sum x^2) - (\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the

formula $b = (\sum y)(\sum x^2) - \frac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}.$

Problem 1 (Page 2)

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=11+16+9+15+16$$

Simplify the expression.

$$\sum x=67$$

Sum up the values of the second column of data (y).

$$\sum y=11+10+13+13+16$$

Simplify the expression.

$$\sum y=63$$

Sum up the values of $x \cdot y$.

$$\sum xy=11\cdot 11+16\cdot 10+9\cdot 13+15\cdot 13+16\cdot 16$$

Problem 1 (Page 3)

Simplify the expression.

$$\sum xy = 849$$

Sum up the values of x^2.

$$\sum x^2 = (11)^2 + (16)^2 + (9)^2 + (15)^2 + (16)^2$$

Simplify the expression.

$$\sum x^2 = 939$$

Sum up the values of y^2.

$$\sum y^2 = (11)^2 + (10)^2 + (13)^2 + (13)^2 + (16)^2$$

Simplify the expression.

$$\sum y^2 = 815$$

Fill in the computed values.

$$m = \frac{5(849) - (67)(63)}{5(939) - (67)^2}$$

Simplify the expression.

Problem 1 (Page 4)

$m=0.1165$

Fill in the computed values.

$$b=\frac{(63)(939)-(67)(849)}{5(939)-(67)^2}$$

Simplify the expression.

$b=11.0388$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.1165x+11.0388$

Problem 1

x	y
27	29
27	28
27	32
29	27
29	33
27	32
27	27
33	24
33	30

The slope of the best fit regression line can be found using the formula

$$m = n\left(\sum xy\right) - \frac{\left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}.$$

$$m = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b = (\sum y)(\sum x^2) - \dfrac{(\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}$.

$$b = \frac{(\sum y)(\sum x^2) - (\sum x)(\sum xy)}{(n(\sum x^2) - (\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x = 27+27+27+29+29+27+27+33+33$$

Simplify the expression.

$$\sum x = 259$$

Sum up the values of the second column of data (y).

$$\sum y = 29+28+32+27+33+32+27+24+30$$

Simplify the expression.

$$\sum y = 262$$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 27 \cdot 29 + 27 \cdot 28 + 27 \cdot 32 + 29 \cdot 27 + 29 \cdot 33 + 27 \cdot 32 + 27 \cdot 27 + 33 \cdot 24 + 33 \cdot 30$$

Simplify the expression.

$$\sum xy = 7518$$

Sum up the values of x^2.

$$\sum x^2 = (27)^2 + (27)^2 + (27)^2 + (29)^2 + (29)^2 + (27)^2 + (27)^2 + (33)^2 + (33)^2$$

Simplify the expression.

$$\sum x^2 = 7505$$

Sum up the values of y^2.

$$\sum y^2 = (29)^2 + (28)^2 + (32)^2 + (27)^2 + (33)^2 + (32)^2 + (27)^2 + (24)^2 + (30)^2$$

Simplify the expression.

$$\sum y^2 = 7696$$

Problem 1 (Page 4)

Fill in the computed values.

$$m=\frac{9(7518)-(259)(262)}{9(7505)-(259)^2}$$

Simplify the expression.

$m=-0.4224$

Fill in the computed values.

$$b=\frac{(262)(7505)-(259)(7518)}{9(7505)-(259)^2}$$

Simplify the expression.

$b=41.2672$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=-0.4224x+41.2672$

Problem 1

x	y
2	13
7	11
4	7
2	10
5	13
2	10
2	8

The slope of the best fit regression line can be found using the formula

$$m = n\left(\sum xy\right) - \frac{\left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}.$$

$$m = \frac{n\left(\sum xy\right) - \left(\sum x\right)\left(\sum y\right)}{\left(n\left(\sum x^2\right) - \left(\sum x\right)^2\right.}$$

The y-intercept of the best fit regression line can be found using the

Problem 1 (Page 2)

formula $b=(\sum y)(\sum x^2)-\dfrac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Sum up the values of the first column of data (x).

$$\sum x=2+7+4+2+5+2+2$$

Simplify the expression.

$$\sum x=24$$

Sum up the values of the second column of data (y).

$$\sum y=13+11+7+10+13+10+8$$

Simplify the expression.

$$\sum y=72$$

Problem 1 (Page 3)

Sum up the values of $x \cdot y$.

$$\sum xy = 2 \cdot 13 + 7 \cdot 11 + 4 \cdot 7 + 2 \cdot 10 + 5 \cdot 13 + 2 \cdot 10 + 2 \cdot 8$$

Simplify the expression.

$$\sum xy = 252$$

Sum up the values of x^2.

$$\sum x^2 = (2)^2 + (7)^2 + (4)^2 + (2)^2 + (5)^2 + (2)^2 + (2)^2$$

Simplify the expression.

$$\sum x^2 = 106$$

Sum up the values of y^2.

$$\sum y^2 = (13)^2 + (11)^2 + (7)^2 + (10)^2 + (13)^2 + (10)^2 + (8)^2$$

Simplify the expression.

$$\sum y^2 = 772$$

Fill in the computed values.

Problem 1 (Page 4)

$$m=\frac{7(252)-(24)(72)}{7(106)-(24)^2}$$

Simplify the expression.

$m=0.2169$

Fill in the computed values.

$$b=\frac{(72)(106)-(24)(252)}{7(106)-(24)^2}$$

Simplify the expression.

$b=9.5422$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=0.2169x+9.5422$

Problem 1

x	y
32	29
33	27
30	15

The slope of the best fit regression line can be found using the formula

$$m=n(\sum xy)-\frac{(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}.$$

$$m=\frac{n(\sum xy)-(\sum x)(\sum y)}{(n(\sum x^2)-(\sum x)^2}$$

The y-intercept of the best fit regression line can be found using the formula $b=(\sum y)(\sum x^2)-\frac{(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$.

$$b=\frac{(\sum y)(\sum x^2)-(\sum x)(\sum xy)}{(n(\sum x^2)-(\sum x)^2}$$

Problem 1 (Page 2)

Sum up the values of the first column of data (x).

$$\sum x = 32 + 33 + 30$$

Simplify the expression.

$$\sum x = 95$$

Sum up the values of the second column of data (y).

$$\sum y = 29 + 27 + 15$$

Simplify the expression.

$$\sum y = 71$$

Sum up the values of $x \cdot y$.

$$\sum xy = 32 \cdot 29 + 33 \cdot 27 + 30 \cdot 15$$

Simplify the expression.

$$\sum xy = 2269$$

Problem 1 (Page 3)

Sum up the values of x^2.

$$\sum x^2 = (32)^2 + (33)^2 + (30)^2$$

Simplify the expression.

$$\sum x^2 = 3013$$

Sum up the values of y^2.

$$\sum y^2 = (29)^2 + (27)^2 + (15)^2$$

Simplify the expression.

$$\sum y^2 = 1795$$

Fill in the computed values.

$$m = \frac{3(2269) - (95)(71)}{3(3013) - (95)^2}$$

Simplify the expression.

$$m = 4.4286$$

Fill in the computed values.

Problem 1 (Page 4)

$$b=\frac{(71)(3013)-(95)(2269)}{3(3013)-(95)^2}$$

Simplify the expression.

$b=-116.5714$

Fill in the values of slope (m) and y-intercept (b) into the slope y-intercept formula.

$y=4.4286x+-116.5714$