

For problems #1 through #4, determine whether the underlined value is a parameter or a statistic.

- 1) In a survey conducted in the town of Atherton, 28% of adult respondents reported that they had been involved in at least one car accident in the past ten years.
A) Parameter B) Statistic
- 2) 29.2% of the mayors of cities in a certain state are from minority groups.
A) Parameter B) Statistic
- 3) A study of 2700 college students in the city of Pembrington found that 14% had been victims of violent crimes.
A) Parameter B) Statistic
- 4) Mark retired from competitive athletics last year. In his career as a sprinter he had competed in the 100-meters event a total of 328 times. His average time for these 328 races was 10.24 seconds.
A) Parameter B) Statistic
- 5) Which one of the following would **not** be considered a qualitative variable?
A) bank account numbers B) the jersey numbers of the 53 players on an NFL team
C) the number of books at a bookstore D) the native Languages in an English class
- 6) Which one of the following would **not** be considered a quantitative variable?
A) temperature in all capital cities B) the weights of the 53 players on an NFL team
C) the number of bison in Yellowstone D) the colors in a rainbow

For problems #7 through #10, determine whether the quantitative variable is discrete or continuous.

- 7) The weight of a player on the wrestling team
A) Discrete B) Continuous
- 8) The cholesterol levels of a group of adults the day after Thanksgiving.
A) Discrete B) Continuous
- 9) The number of goals scored by the Anaheim Ducks in a hockey game.
A) Discrete B) Continuous
- 10) All shoe sizes at a Vans Outlet store.
A) Discrete B) Continuous

For problems #11 and #12: A manufacturer of cellular phones has decided that an assembly line is operating satisfactorily if less than 0.02% of the phones produced per day are defective. To check the quality of a day's production, the company decides to randomly sample 50 phones from a day's production to test for defects.

- 11) Define the population of interest to the manufacturer.
A) the 50 responses: defective or not defective B) the 50 phones sampled and tested
C) all the phones produced during the day in question D) the 0.02% of the phones that are defective
- 12) Which of the following is the sample?
A) the 50 responses: defective or not defective B) the 50 phones sampled and tested
C) all the phones produced during the day in question D) the 0.02% of the phones that are defective

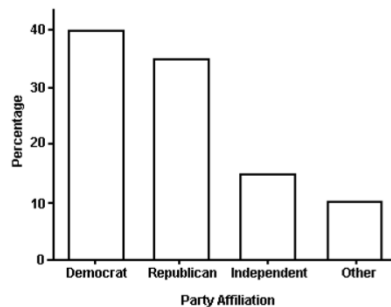
For problems #13 and #14: Recent study attempted to estimate the proportion of Florida residents who were willing to spend more tax dollars on protecting the Florida beaches from environmental disasters. Forty-four hundred Florida residents were surveyed.

- 13) Which of the following is the population used in the study?
 A) the Florida residents who were willing to spend more tax dollars on protecting the beaches from environmental disasters
 B) all Florida residents who lived along the beaches
 C) all Florida residents
 D) the 4400 Florida residents surveyed
- 14) Which of the following is the sample used in the study?
 A) the Florida residents who were willing to spend more tax dollars on protecting the beaches from environmental disasters
 B) all Florida residents who lived along the beaches
 C) all Florida residents
 D) the 4400 Florida residents surveyed

For problems #15 through #18, determine whether the study depicts an observational study or an experiment.

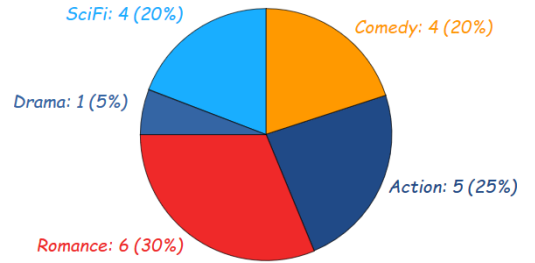
- 15) A medical researcher obtains a sample of adults suffering from diabetes. She randomly assigns 30 people to a treatment group and 30 to a placebo group. The treatment group receives a medication over a period of three months and the placebo group receives a placebo over the same time frame. At the end of three months the patients' symptoms are evaluated.
 A) observational study B) experiment
- 16) A poll is conducted in which professional musicians are asked their ages.
 A) observational study B) experiment
- 17) A researcher obtained a random sample of 100 smokers and a random sample of 100 nonsmokers. After interviewing all 200 participants in the study, the researcher compared the rate of depression among the smokers with the rate of depression among nonsmokers.
 A) observational study B) experiment
- 18) A scientist was studying the effects of a new fertilizer on crop yield. She randomly assigned half of the plots on a farm to group one and the remaining plots to group two. On the plots in group one, the new fertilizer was used for a year. On the plots in group two, the old fertilizer was used. At the end of the year the average crop yield for the plots in group one was compared with the average crop yield for the plots in group two.
 A) observational study B) experiment

- 19) The bar graph below shows the political party affiliation of 1000 registered U.S. voters. What percentage of the 1000 Registered U.S. voters belonged to one of the traditional two parties (Democratic and Republican)?
 A) 40 B) 35 C) 15
 D) 10 E) 75

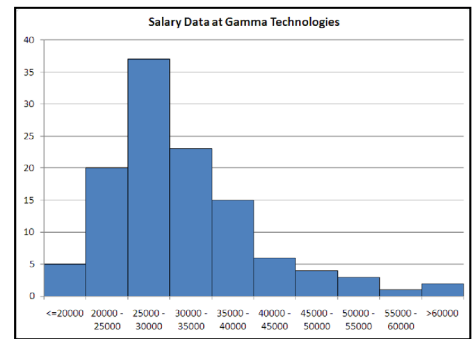


For problems #20 and #21. The pie chart to the right shows the results of a survey on what their favorite type of movie is.

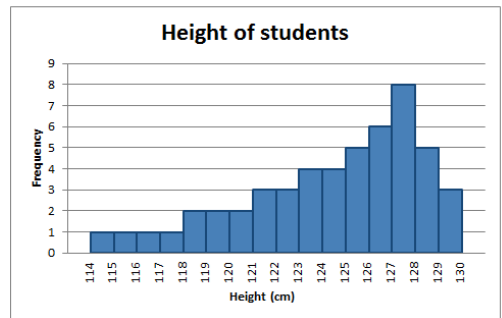
- 20) What type of movie was the least favorite?
 A) SciFi B) Drama C) Romance
 D) Action E) Comedy
- 21) How many people were surveyed?
 A) 100 B) 40 C) 120
 D) 140 E) 20



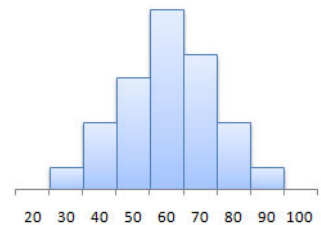
- 22) Describe the shape of the distribution.
 A) skewed to the left
 B) skewed to the right
 C) uniform
 D) bell shaped



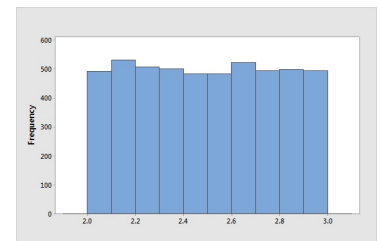
- 23) Describe the shape of the distribution.
 A) skewed to the left
 B) skewed to the right
 C) uniform
 D) bell shaped



- 24) Describe the shape of the distribution.
 A) skewed to the left
 B) skewed to the right
 C) uniform
 D) bell shaped



- 25) Describe the shape of the distribution.
 A) skewed to the left
 B) skewed to the right
 C) uniform
 D) bell shaped

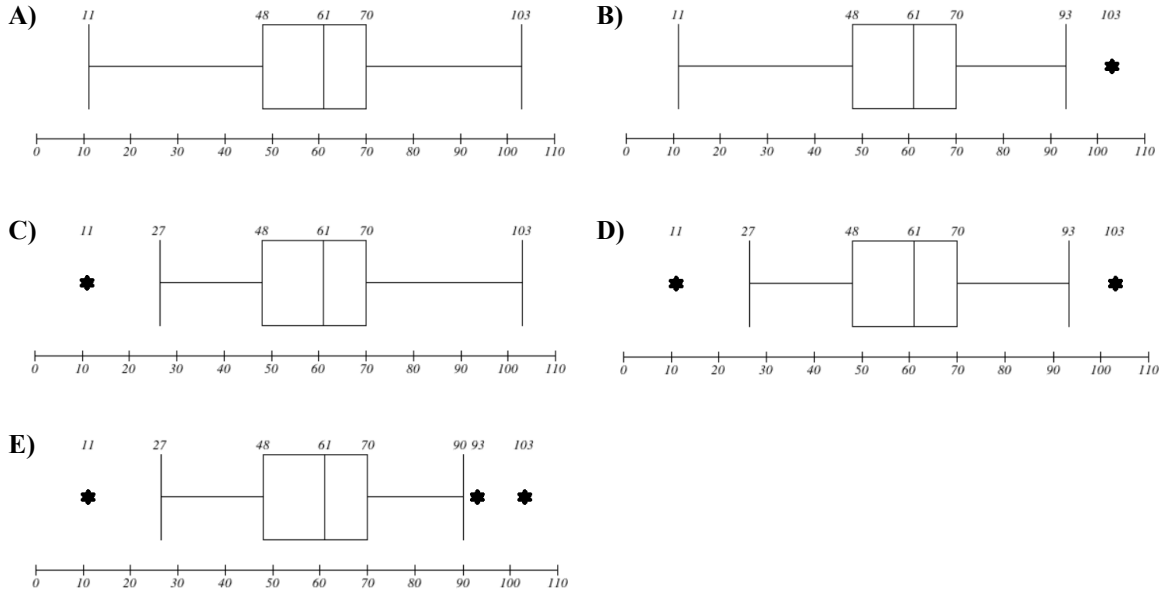


- 35) A driver wrote down the total time in minutes of all his Uber trips on a Saturday in Las Vegas. The times are 10, 26, 22, 43, 15, 17, 12, 39. Find the range.
A) 29 B) 31 C) 23 D) 19.5 E) 33
- 36) In a data set when the mean is significantly larger than the median, then the distribution is
A) left skewed B) right skewed C) normal D) uniform
- 37) The amount of television viewed by today's youth is of primary concern to Parents Against Watching Television (PAWT). 300 parents of elementary school-aged children were asked to estimate the number of hours per week that their child watched television. The mean and the standard deviation for their responses were 17 and 5, respectively. PAWT constructed a stem-and-leaf display for the data that showed that the distribution of times was a bell-shaped distribution. Give an interval around the mean where you believe most (approximately 95%) of the television viewing times fell in the distribution.
A) between 7 and 27 hours per week B) less than 12 and more than 22 hours per week
C) between 2 and 32 hours per week D) between 12 and 22 hours per week
- 38) Solar energy is considered by many to be the energy of the future. A recent survey was taken to compare the cost of solar energy to the cost of gas or electric energy. Results of the survey revealed that the distribution of the amount of the monthly utility bill of a 3-bedroom house using gas or electric energy had a mean of \$117 and a standard deviation of \$13. If the distribution can be considered bell shaped, what percentage of homes will have a monthly utility bill of more than \$104?
A) approximately 32% B) approximately 95%
C) approximately 16% D) approximately 84%
- For problems #39 and #40: The following dollar amounts were the hourly collections from a Salvation Army kettle at a local store one day in December: \$19, \$26, \$25, \$37, \$32, \$28, \$22, \$23, \$29, \$34, \$39, and \$31.
- 39) Determine the first quartile for the amount collected.
A) \$22 B) \$23 C) \$23.50 D) \$24 E) \$25
- 40) Determine the third quartile for the amount collected.
A) \$33 B) \$32 C) \$34 D) \$31.50 E) \$35
- 41) The mean of a set of data is 100 and its standard deviation is 12. Find the z -score for a value of 80. Round your final answer to two decimal places.
A) 1.47 B) -1.47 C) 1.67 D) -1.67 E) None of these.
- 42) Armando is filling out a college application. The application requires that Armando supply either his SAT math score or his ACT math score. Armando scored 610 on the SAT math and 27 on the ACT math. Which score should Armando report, given that the mean SAT math score is 515 with a standard deviation of 114, and the mean ACT math score is 21.0 with a standard deviation of 5.1?
A) The SAT math score B) The ACT math score C) Either one, it doesn't matter.

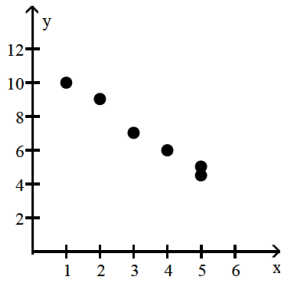
43) The following set of numbers are the allowances of fifteen different boys in a given week:

11, 27, 46, 48, 50, 51, 59, 61, 62, 63, 65, 70, 90, 93, 103

Create a boxplot for the data.



44) Determine from the scatter diagram, if at all, how the variables are related.



- A) The variables appear to be positively, strong, and linearly related.
- B) The variables appear to be negatively, strong, and linearly related.
- C) The variables appear to be positively, moderate to weak, and linearly related.
- D) The variables appear to be negatively, moderate to weak, and linearly related.
- E) The variables appear to be very weak and not linearly related.

45) In which scatter diagram is $r = -0.812$?

