1a. The population consists of the prices per gallon of regular gasoline at all gasoline stations in the United States. The sample consists of the prices per gallon of regular gasoline at the 800 surveyed stations.

b. The data set consists of the 800 prices.

2a. Because the numerical measure of $5,150,694 is based on the entire collection of employee's salaries, it is from a population.

b. Because the numerical measure is a characteristic of a population, it is a parameter.

3a. Descriptive statistics involve the statement "31% support their kids financially until they graduate college and 6% provide financial support until they start college."

b. An inference drawn from the survey is that a higher percentage of parents support their kids financially until they graduate college.

1. A sample is a subset of a population.

2. It is usually impractical (too expensive and/or time consuming) to obtain all the population data.

3. A parameter is a numerical description of a population characteristic. A statistic is a numerical description of a sample characteristic.

4. The two main branches of statistics are descriptive statistics and inferential statistics.

5. False. A statistic is a numerical measure that describes a sample characteristic.

6. True

7. True

8. False. Inferential statistics involves using a sample to draw conclusions about a population.

9. False. A population is the collection of *all* outcomes, responses, measurements, or counts that are of interest.

10. False. A sample statistic can differ from sample to sample.

11. The data set is a population because it is a collection of the revenue of each of the 30 companies in the Dow Jones Industrial Average.

12. The data set is a population because it is a collection of the energy collected from all the wind turbines on the wind farm.

13. The data set is a sample because the collection of the 500 spectators is a subset within the population of the stadium's 42,000 spectators.

14. The data set is a population because it is a collection of the annual salaries of all pharmacists at a pharmacy.

15. The data set is a sample because the collection of the 20 patients is a subset of the population of 100 patients at the hospital.

16. The data set is a population because it is a collection of the number of televisions in all U.S. households.

17. The data set is a population because it is a collection of all the golfers' scores in the tournament.

18. The data set is a sample because only the age of every third person entering the clothing store is recorded.

19. The data set is a population because it is a collection of all the U.S. presidents' political parties.

20. The data set is a sample because the collection of the 10 soil contamination levels is a subset of the population.

21. Population: Parties of registered voters in Warren County

Sample: Parties of Warren County voters responding to online survey

22. Population: All students who donate at a blood drive

Sample: The students who donate and have type O^+ blood

23. Population: Ages of adults in the United States who own cell phones

Sample: Ages of adults in the United States who own Samsung cell phones

24. Population: Incomes of all homeowners in Texas

Sample: Incomes of homeowners in Texas with mortgages

25. Population: Collection of the responses of all adults in the United States

Sample: Collection of the responses of the 1015 U.S. adults surveyed

26. Population: Collection of the heart rhythms of all infants in Italy

Sample: Collection of the heart rhythms of the 33,043 infants in Italy in the study

27. Population: Collection of the immunization status of all adults in the U.S.

Sample: Collection of the immunization status of the 12,082 U.S. adults surveyed

28. Population: Collection of the factors for choosing a hotel of all adults in the United States

Sample: Collection of the factors for choosing a hotel of the 1012 U.S. adults surveyed

29. Population: Collection of the average billing rates of all U.S. law firms

Sample: Collection of the average billing rates of the 55 U.S. law firms surveyed

30. Population: Collection of the travel plans of all students at a college

Sample: Collection of the travel plans of the 496 students surveyed at a college

31. Population: Collection of the effect of sleepiness on all pilots

Sample: Collection of the effect of sleepiness on the 202 pilots surveyed

32. Population: Collection of the responses of all major-appliance shoppers

Sample: Collection of the responses of the 961 major-appliance shoppers surveyed

33. Population: Collection of the starting salaries at all 500 companies listed in the Standard & Poor's 500

Sample: Collection of the starting salaries at the 65 companies listed in the Standard & Poor's 500 that were contacted by the researcher

34. Population: Collection of the times spent per day to using entertainment media by all third- to twelfth-grade students

Sample: Collection of the times spent per day to using entertainment media by the 2002 third- to twelfth-grade students surveyed

35. Statistic. The value $68,000 is a numerical description of a sample of annual salaries.

36. Statistic. The value 38% is a numerical description of a sample of college board members.

37. Parameter. The 62 surviving passengers out of 97 total passengers is a numerical description of all of the passengers of the Hindenburg that survived.

38. Parameter. The value 60% is a numerical description of the total number of governors.

39. Statistic. The value 8% is a numerical description of a sample of computer users.

40. Parameter. The value 78% is a numerical description of all voters in a county.

41. Statistic. The value 52% is a numerical description of a sample of U.S. adults.

42. Parameter. The score 21.1 is a numerical description of ACT scores for all graduates.

43. The statement "20% admit that they have made a serious error due to sleepiness" is an example of descriptive statistics.

An inference drawn from the sample is that an association exists between sleepiness and pilot error.

44. The statement "23% bought extended warranties" is an example of descriptive statistics.

An inference drawn from the sample is that most major-appliance shoppers do not buy extended warranties.

45. Answers will vary.

46. (a) The sample is the responses of the volunteers in the study.

(b) The population is the collection of all individuals who completed the math test.

(c) The statement "three times more likely to answer questions correctly" is an example of descriptive statistics.

(d) An inference drawn from the sample is that individuals who are not sleep deprived will be more likely to answer math questions correctly than individuals who are sleep deprived.

47. (a) An inference drawn from the sample is that senior citizens who live in Florida have better memories than senior citizens who do not live in Florida.

(b) It implies that if you live in Florida, you will have better memory.

48. (a) An inference drawn from the sample is that the obesity rate among boys ages 2 to 19 is increasing.

(b) The inference may incorrectly imply that the trend will continue in future years.

49. Answers will vary.

1a. One data set contains names of cities and the other contains city populations.

 b. City names: Nonnumerical
City Populations: Numerical

 c. City names: Qualitative
City Populations: Quantitative