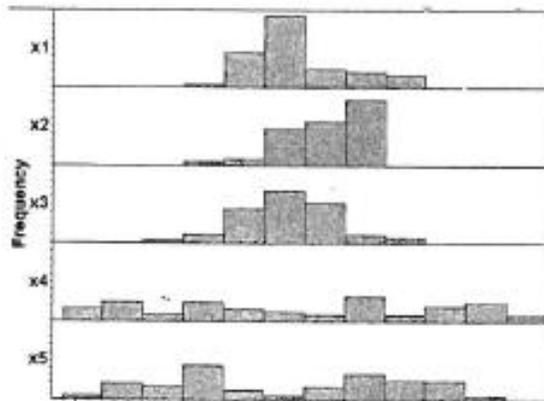


AP Statistics  
Chapter 1 Review

Name \_\_\_\_\_

- Which of the following is NOT a quantitative variable?
  - Number of dogs in a house
  - A TV channel number
  - A student's shoe size
  - Number of songs played on a radio station in one hour
  - Number of songs stored on a person's iPod
- Which variable is most likely to be skewed to the right?
  - student's grade on an easy statistics test
  - heights of male high school students
  - number of goals scored in a soccer game
  - ages of male high school students
  - color of a student's car

Questions 3 – 6 refer to the following histograms



- Which of the variables has a skewed left distribution?
  - x1
  - x2
  - x3
  - x4
  - x5
- Which of the variables would be described as mound shaped?
  - x1
  - x2
  - x3
  - x4
  - x5
- Which of the variables is most likely the distribution of heights of high school students?
  - x1
  - x2
  - x3
  - x4
  - x5
- Which of the distributions is the most representative of the costs of properties on a Monopoly board?
  - x1
  - x2
  - x3
  - x4
  - x5

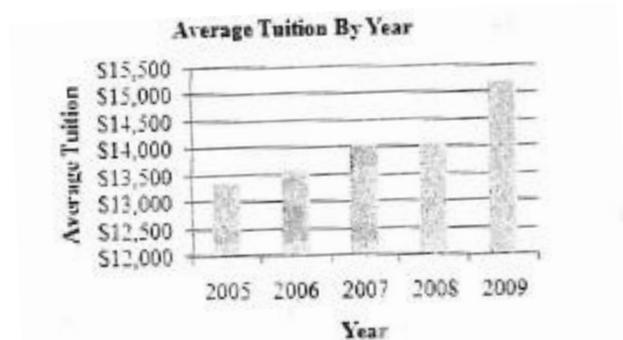
7. Which of the following are false statements about stem and leaf plots?
- I. They are used to display both categorical and quantitative variables.
  - II. They are useful for both small and large datasets.
  - III. One can easily see the shape of the distribution and unusual data values.

a. I only      b. III only      c. I and III      d. I and II      e. II and III

8. Consider the bar chart on average yearly tuition for public four year universities. Which of the following is true?

- I. The distribution of average tuition is skewed right
- II. Tuition increased less from 2006 to 2007 than 2008 to 2009.
- III. If the vertical axis started at \$13,000 that would result in a misleading picture.

a. II only      b. III only      c. II and III      d. I and II      e. I, II and III



9. Which of the following are true statements about histograms?
- I. The vertical axis can be either frequencies or relative frequencies.
  - II. They are useful for both small and large datasets
  - III. One can easily see the shape of the distribution and unusual data values.

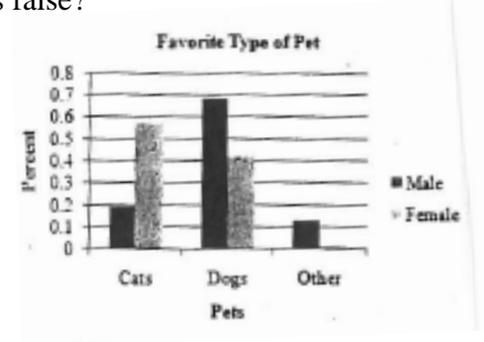
a. I and II      b. I and III      c. II and III      d. I, II and III      e. I only

10. Which of the following are true statements?
- I. For a given dataset, you can make two histograms that look different by changing the bin width.
  - II. For every bar chart, you can construct a pie chart with the same information
  - III. Ever symmetric distribution is unimodal.

a. I and II      b. I and III      c. I, II and III      d. I only      e. III only

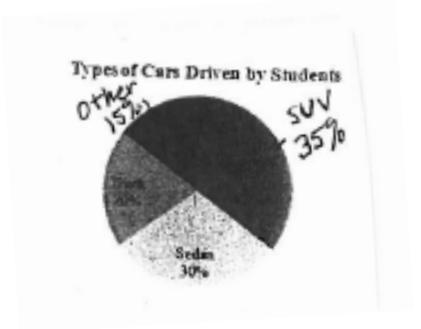
11. Given the following comparative bar chart, which of the following is false?

- a. More females prefer cats than dogs
- b. A higher percentage of doge lovers are male
- c. A very small percentage of women prefer a pet other than cats or dogs
- d. About 20% of the people who prefer cats are male.
- e. Almost half of the the dog lovers are female.



12. Given the following pie chart, which of the following is true?

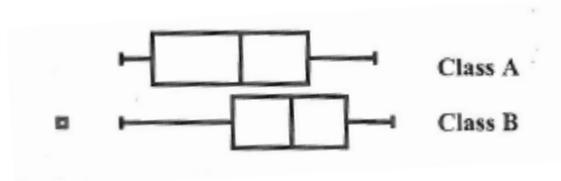
- a. Students tend to drive cars make in the USA
- b. Most teachers do not drive trucks
- c. Students prefer SUV's to other types of cars.
- d. A higher percentage of students drive SUV's compared to other types of cars.
- e. More students drive jeeps than trucks



13. The most appropriate graph to display data on the distribution of favorite foods for the students in your statistics class is

- a. a bar chart
- b. a scatterplot
- c. a back to back stem and leaf plot
- d. a histogram
- e. a cumulative frequency plot

14. Each of the boxplots shown contains 24 student scores on a recent test in two different classes. Which answer best describes these displays?



- a. Class A had more people in the 2<sup>nd</sup> quartile than Class B.
- b. Class A and Class B both have the same number of people passing the test.
- c. Class A is somewhat symmetric, while Class B is skewed right with a noticeable outlier as well.
- d. Class B is skewed left and had a noticeable outlier as well, while Class A is somewhat skewed right.
- e. The lower 25% of class B are much more spread out than the lower 25% of Class A making Class B a skewed left distribution.

15. A teacher found that the mean number of hours her students spent studying for an AP Statistics exam per week was 6.7 for 12 students. A new student from across town transferred in and reported studying 11 hours per week. What is the new mean approximated to the nearest 10<sup>th</sup> of an hour?

- a. 7.6 hours
- b. 7.0 hours
- c. 6.7 hours
- d. 8.9 hours
- e. 8.3 hours

16. A graduate department at the local university is seeking raises for their faculty members. The university claims they are paid sufficiently while the department claims they are being paid less than their counterparts at similar type university programs. Both sides have based their claims on recent department statistical data that includes all faculty members in the calculations. Which of the following best explains their differing interpretations of the same data?

- a. The university is focusing on the modal income, while the faculty is focusing on the mean income, which includes the Dean's salary.
- b. The faculty is focusing on the median income of the department member, while the university is focusing on the mean income, which includes the Dean's salary.
- c. The university is focusing on the median income of the department members, while the faculty is focusing on the mean income, which includes the Dean's salary.
- d. The university is focusing on the mean income that includes a teaching assistant at the far end of the lower side of this pay scale.
- e. The faculty is focusing on the mode income, while the university is focusing on the mean income that does not include the Dean's salary.

17. Which measures are considered least resistant to change in a data set?

- a. mean, standard deviation, and interquartile range
- b. median, interquartile range and variance
- c. mean, variance, interquartile range and median
- d. median, range, and standard deviation
- e. mean, variance and standard deviation

18. A group of 24 AP students measured the length of time it took for a chocolate chip to melt in their mouth in seconds. They melted a total of 80 chips. The five number summary, in seconds for this set turned out to be as follows:

12    29    35    38    41

Approximately how many chips had a melt time between 12 – 29 seconds?

- a. 6
- b. 12
- c. 18
- d. 20
- e. 24

19. The table below displays data on several roller coasters that were opened in 2009

Roller Coaster	Type	Height (ft)	Design	Speed (mph)	Duration (s)
Wild Mouse	Steel	49.3	Sit down	28	70
Terminator	Wood	95	Sit down	50.1	180
Manta	Steel	140	Flying	56	155
Prowler	Wood	102.3	Sit down	51.2	150
Diamondback	Steel	230	Sit down	80	180

- What individuals does this data set describe?
- Clearly identify each of the variables. Which are quantitative? Which are categorical?

20. Births are not, as you might think, evenly distributed across the days of the week. Here are the average numbers of babies born on each day of the week in 2003:

- Present these data in a well labeled bar graph

Day	Births
Sunday	7,563
Monday	11,733
Tuesday	13,001
Wednesday	12,598
Thursday	12,514
Friday	12,396
Saturday	8,695

- Suggest possible reasons why there are fewer births on weekends.

21. Below are the travel times in minutes for 15 workers in North Carolina chosen at random by the Census Bureau.

30	20	10	40	25	20	10	60
15	40	5	30	12	10	10	

- a. Compute the mean and median \_\_\_\_\_
- b. Compute the range and IQR \_\_\_\_\_
- c. Compute the limits for outliers \_\_\_\_\_
- d. Compute the standard deviation \_\_\_\_\_
- e. Name the 5-number summary and draw a box-plot of this data

22. Draw a histogram that would be classified as:
- a. skewed right
  - b. symmetric
  - c. skewed left
  - d. uniform

23. Two AP teachers within a school district have recorded their test results on the district exam that was taken at the end of the first semester of the course. All students had been taught the same chapters prior to the first semester exam. The results are shown below.

Teacher A	59, 86, 92, 42, 71, 73, 78, 80, 75, 84, 73, 78
Teacher B	67, 68, 70, 55, 60, 95, 86, 72, 85, 80, 74, 59

- a. Draw comparative boxplots for both teachers.
- b. Were outliers detected? Explain how you arrived at this answer.
- c. Who appears to have gotten better results from their students? Justify your response.