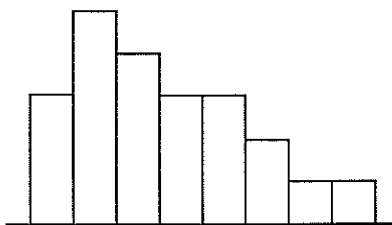
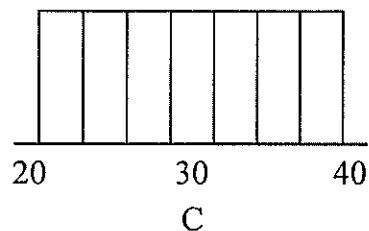
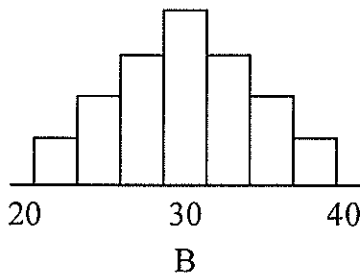
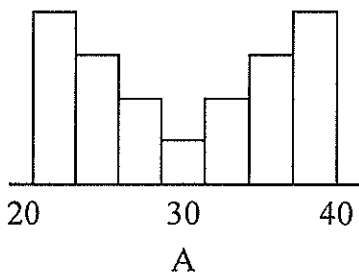


3. Which of the following is more likely to be true of this distribution?



- (A) Mean = 3 Median = 3 Mode = 3
- (B) Mean = 3.5 Median = 4 Mode = 3
- (C) Mean = 4 Median = 3.5 Mode = 3
- (D) Mean = 3.5 Median = 3.5 Mode = 5
- (E) Mean = 3 Median = 2 Mode = 5

Use the following graphs for questions 10–11. Assume the heights (frequencies) of each picture use the same scale.



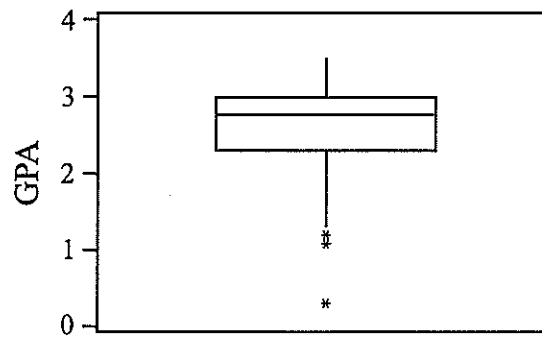
10. Which distribution above has the smallest standard deviation?

- (A) A
- (B) B
- (C) C
- (D) It cannot be determined from the graphs
- (E) All three distributions have the same standard deviation

11. In which distribution(s) would you be more likely to find the mean and median the same?

- (A) A only
- (B) B only
- (C) C only
- (D) A and B only
- (E) A, B, and C

20. Which statement is true about the boxplot below?



- I. It is a left skewed distribution which has outliers.
- II. It is a symmetrical distribution which has outliers.
- III. The interquartile range is less than 1.
- IV. Approximately 75% of the observations have a GPA less than 3.

- (A) I only
- (B) II only
- (C) II and III
- (D) III and IV only
- (E) I, III, and IV

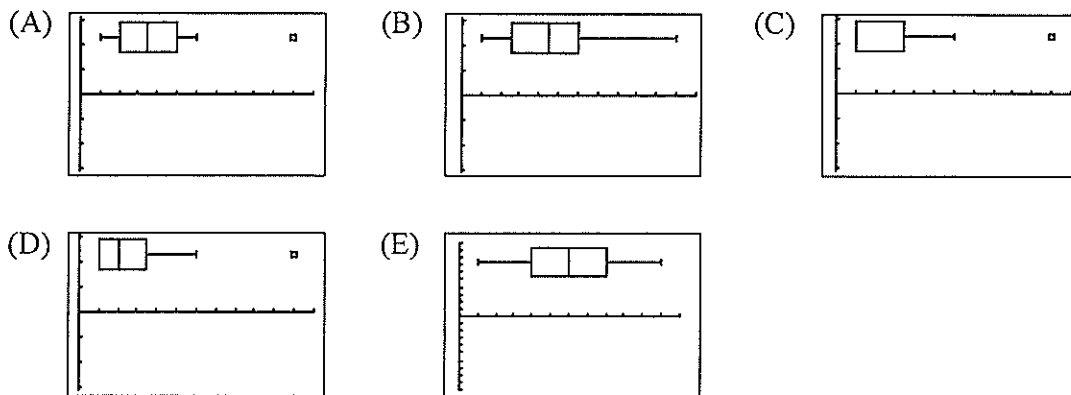
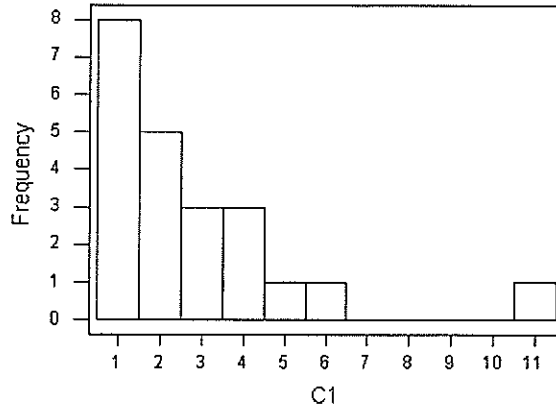
24. The stem plot below summarizes the number of gold medals earned by 40 countries in the Winter Olympics for 1924–1998.

0	8279902011100110110001000
1	988
2	9571
3	9895
4	3
5	9
6	1
7	8
8	8

The data depicts a distribution that is

- (A) skewed to the left
- (B) skewed to the right
- (C) symmetric
- (D) uniform
- (E) not determinable from the information given

31. The histogram below displays a set of measurements. Which of the boxplots below displays the same set of measurements?



22. A data set's five-number summary is given below:

minimum = 22
 first quartile = 31.2
 median = 44.5
 third quartile = 59.8
 maximum = 67

There are no outliers in this data set.

Which of the following conclusions can be drawn from the data?

- I. The mean is less than 44.5.
- II. Approximately 25% of the scores are above 59.8.
- III. Approximately 50% of the scores lie between 31.2 and 59.8.

- (A) I only
- (B) II only
- (C) II only
- (D) II and III only
- (E) I, II, and III

28. A set of data has the following five-number summary:

minimum = 17, first quartile = 27,
median, = 40, third quartile = 49, maximum = 90

Which of the sets of numbers below contain ALL outliers?

- (A) 75, 80, 85
- (B) 78, 80, 85, 90
- (C) 83, 85, 90
- (D) 2, 3, 85, 90
- (E) 0, 80, 84, 89

33. Which of the following is a resistant measure?

- (A) mean μ
- (B) median
- (C) standard deviation σ
- (D) correlation coefficient r between two variables x and y
- (E) range

35. The grades on a statistics exam were raised five points on each student's paper. This adjustment in the students' grades resulted in

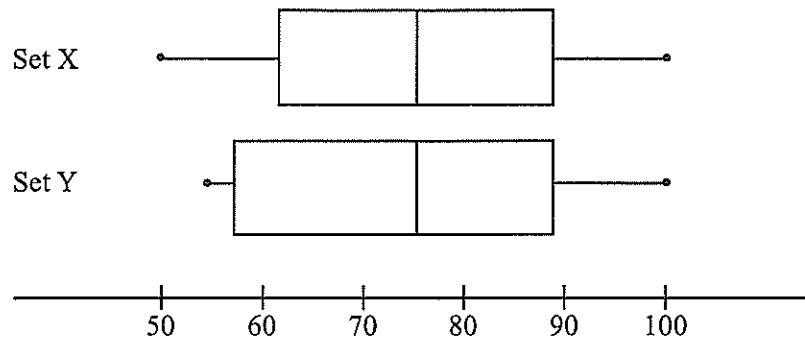
- I. increasing the class mean by five points.
- II. increasing the class median by five points.
- III. increasing the standard deviation by five points.

- (A) I only
- (B) II only
- (C) III only
- (D) I and II only
- (E) I, II, and III

37. On a science examination given to 100 students, 50 earned scores of 90. Most of the other students scored 80, and the remaining students scored 20. Which of the following statements is true about the distribution of the scores?

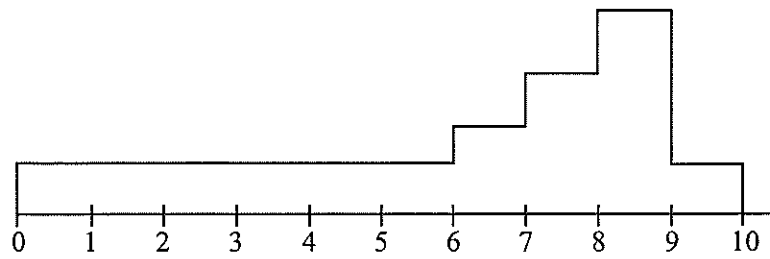
- (A) The mode is equal to the mean.
- (B) The median is greater than the mean.
- (C) The mode is less than the mean.
- (D) The mean is greater than the median.
- (E) The mean is equal to the median.

1. The boxplots shown below summarize two sets of data, X and Y. Which of the following must be true?



- (A) 50 is an outlier for Set X.
(B) Set Y contains more data than Set X.
(C) The interquartile range (IQR) of Set Y is smaller than the IQR of Set X.
(D) The data in Set Y have a smaller range than the data in Set X.
(E) The means of the two data sets are equal.
3. In a recent poll adults were asked to estimate the percentage of children who live in poverty in the United States. The mean response was 7% and the median was 12%. What does this suggest about the shape of the distribution of responses?
- (A) This distribution is most likely symmetric.
(B) The standard deviation of the distribution is $\sqrt{.02}$.
(C) The distribution is most likely skewed to the left.
(D) The distribution is most likely skewed to the right.
(E) This is a uniform distribution.
7. If the standard deviation of a set of data is zero, we can conclude that
- (A) an error in computation was made
(B) the observations are equally spaced
(C) it was not a simple random sample
(D) the mean must also be zero
(E) all the observations are the same

8. The histogram shows the ages of cars in the parking lot at a local high school.

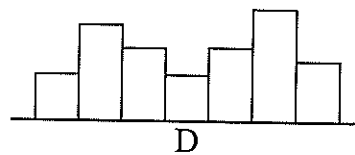
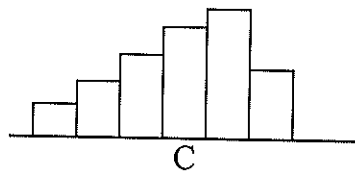
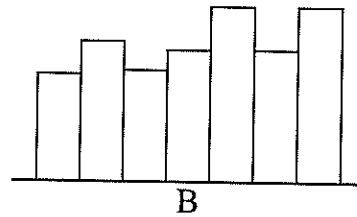
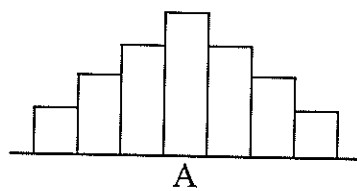


Which of the following statements are TRUE?

- I. The mean age is greater than the median age.
- II. The median age is greater than the mean age.
- III. The median is between 6 and 8 years.

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) II and III

15. Which of the following statements best describes the following histograms?

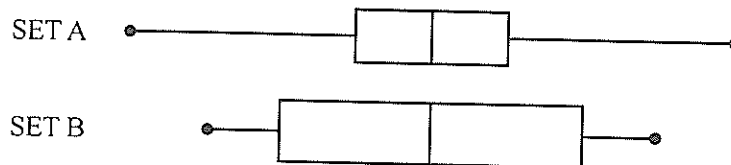


- (A) Histogram A suggests a rectangular distribution.
- (B) Histogram B suggests a normal distribution.
- (C) Histogram C suggests a normal distribution.
- (D) Histogram D suggests a right-skewed distribution.
- (E) Histogram C suggests a left-skewed distribution.

35. Which of the following statements are true if one is constructing a histogram?

- (A) There can be no gaps between bars.
- (B) Bars should be square so that the height and the width equal the class count.
- (C) The heights of the bars should relate to the frequency of each class.
- (D) The scale of the horizontal axis should be the frequency.
- (E) The horizontal axis must begin at 0.

10.



The boxplots above summarize two sets of data, A and B. Which of the following must be true?

- I. Set B contains more observations than Set A.
- II. Set A has a larger range than Set B.
- III. Set A and Set B have the same median.

- (A) I only
- (B) III only
- (C) I and II only
- (D) II and III only
- (E) I, II, and III

19. The following statistics were produced at the end of a week at a weight loss center indicating pounds lost.

mean = 5 lbs. first quartile = 2 lbs.
median = 7 lbs. third quartile = 8.5 lbs.
mode = 4 lbs. standard deviation = 0.5 lbs.

Which of the following statement(s) are correct?

- I. One quarter of weight watchers lost 2 pounds or less.
- II. The middle 50% of the weight watchers lost between 2 and 8.5 pounds.
- III. The most common weight loss was 4 pounds.

- (A) I only
- (B) II only
- (C) III only
- (D) I and III only
- (E) I, II, and III

5. Consider the following test scores:

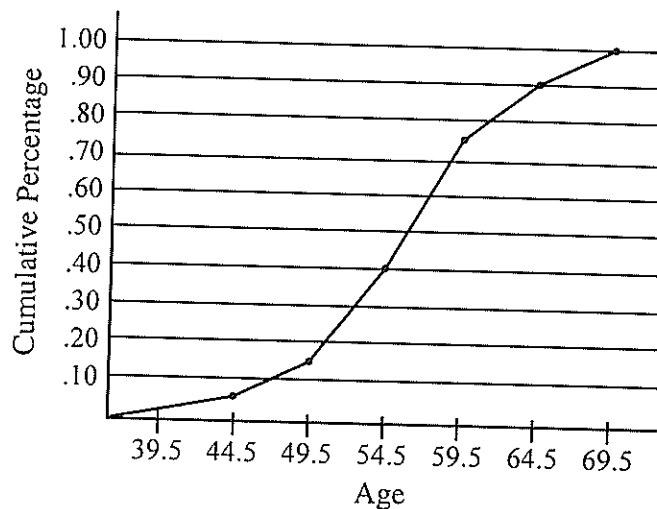
Class A: 65, 72, 73, 73, 74, 82, 91

Class B: 60, 65, 79, 81, 85, 86, 86

Which of the following is a true statement?

- (A) Class A has the greater range, while Class B has the greater standard deviation.
- (B) Class B has the greater range, while Class A has the greater standard deviation.
- (C) The ranges and standard deviations are the same for both classes.
- (D) The ranges are the same, but Class A has the higher standard deviation.
- (E) The ranges are the same, but Class B has the higher standard deviation.

13. The age of United States Presidents at their inaugurations is displayed in this cumulative proportions graph. What is the approximate interquartile range (IQR)?

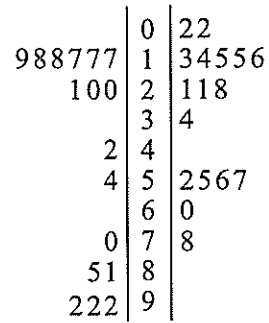


- (A) 2
- (B) 8
- (C) 12
- (D) 15
- (E) 25

31. When a national magazine rated a particular university as its choice for the #1 school in the nation, it stated the average salary of its graduates. The distribution of salaries was unimodal and skewed right. Later it was determined that the figure stated was inflated due to the salary of one alumnus whose income was considered an outlier. If the outlier is removed, which of the following would definitely remain the same?

- (A) mode
- (B) median
- (C) range
- (D) variance
- (E) standard deviation

36. Refer to the following back-to-back stem-and-leaf plot:



Which of the following are true?

- I. The medians of the distributions are the same.
- II. The averages of the distributions are the same.
- III. The ranges of the distributions are the same.

- (A) I only
- (B) II only
- (C) III only
- (D) I and II
- (E) I and III

Answers

3 c 10 b 11 e 20 e ~~21 e~~ 24 b 31 d 22 d 28 c 33 b 35 d 37 b
 1 d 3 c 7 e 8 e 15 e 35 c 10 d 19 e 5 e 13 b 31 a 36 a