

Name \_\_\_\_\_

Date \_\_\_\_\_

AP Statistics

Period \_\_\_\_\_

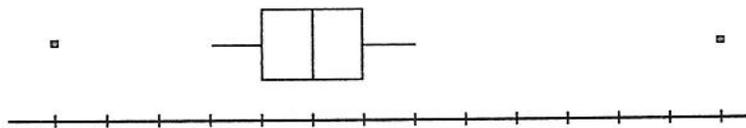
Unit 1 - HW 4

1) Use this back-to-back stemplot to determine which team's scores had a larger IQR and how much larger?

Team A		Team B
	3	23678
87765	4	5668
98643	5	0277
3220	6	36679
99875	7	

- A. Team A, 2
- B. Team A, 4
- C. Team A, 6
- D. Team B, 2
- E. Team B, 4

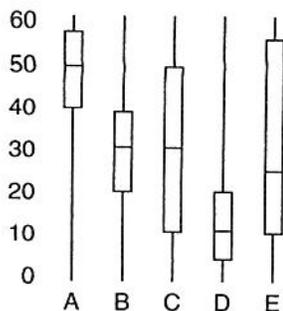
2) Below is a boxplot of yearly tuition and fees of all four year colleges and universities in a Western state. The low outlier is from a private university that gives full scholarships to all accepted students, while the high outlier is from a private college catering to the very rich.



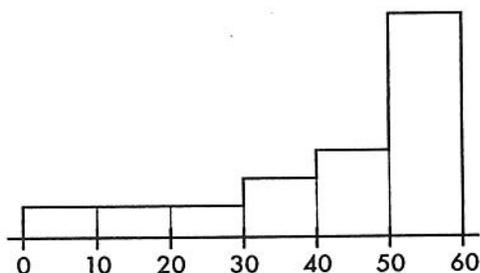
Removing both outliers will effect what changes, if any, on the mean and median costs for this state's four year institutions of higher learning?

- (A) Both the mean and the median will be unchanged.
- (B) The median will be unchanged, but the mean will increase.
- (C) The median will be unchanged, but the mean will decrease.
- (D) The mean will be unchanged, but the median will increase.
- (E) Both the mean and median will change.

Problems 3–5 refer to the following five boxplots.

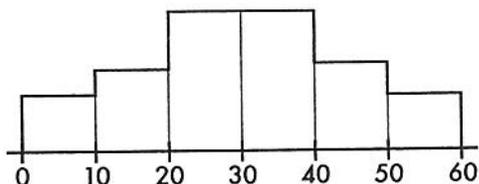


3. To which of the above boxplots does the following histogram correspond?



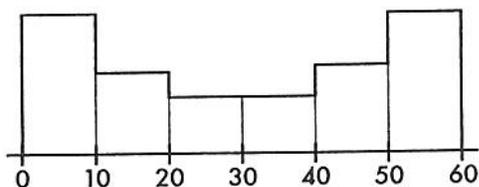
- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

4. To which of the above boxplots does the following histogram correspond?

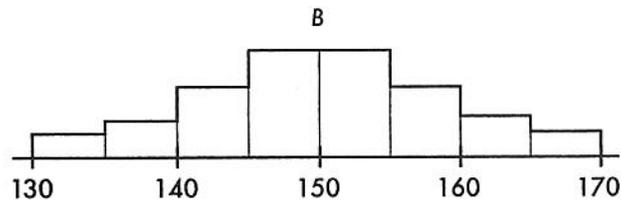
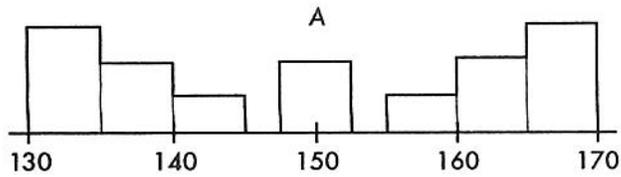


- (A) A
- (B) B
- (C) C
- (D) D
- (E) E

5. To which of the above boxplots does the following histogram correspond?



- (A) A
- (B) B
- (C) C
- (D) D
- (E) E



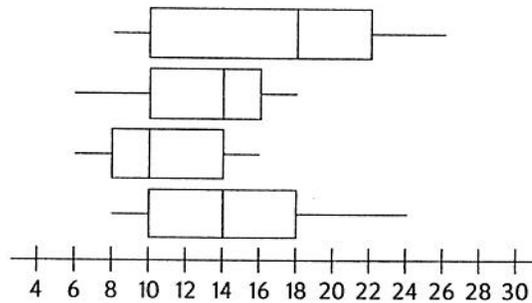
6) Which of the following statements are true?

- I. Both sets have the same mean.
- II. Both sets have the same range.
- III. Both sets have the same variance.

- (A) I only
- (B) I and II
- (C) I and III
- (D) I, II, and III
- (E) None of the above gives the complete set of true responses.

For problems 7 and 8 use the following parallel boxplots:

7 8



7) Which of the following are true statements?

- I. The IQR of the first is equal to the range of the second.
- II. The range is different for all four boxplots.
- III. The sum of the medians for the first and third is equal to the sum of the medians for the second and fourth.

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

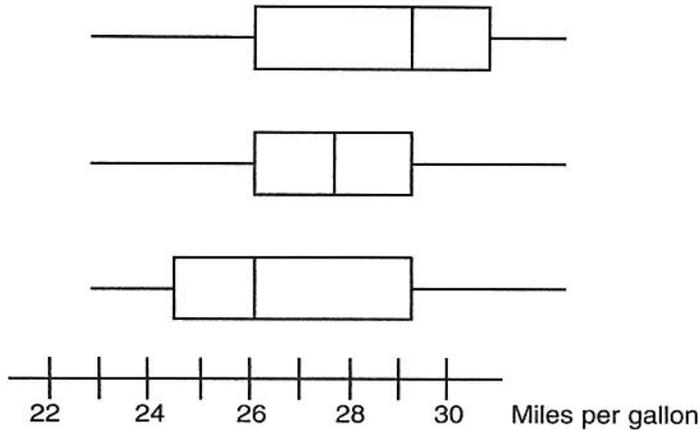
8) Using symmetry as a guide, which two boxplots should have means that are the closest to each other in value?

- A. first and second
- B. first and fourth
- C. second and third
- D. second and fourth
- E. third and fourth

9) The following is the 5-number summary of a set of animal weights:  $a$ , 12,  $b$ , 16, and  $c$ . If a boxplot is drawn to show outliers, what is maximum length of either boxplot whisker?

- A. the larger of  $(12 - a)$  and  $(c - 16)$
- B. the larger of  $(b - a)$  and  $(c - b)$
- C. 6
- D. 8
- E. cannot be determined from the given data

For Questions 10 and 11 consider the following parallel boxplots of gasoline mileage for three car makes:



10) Which of the following are true statements?

- I. All three have the same range.
- II. All three have the same interquartile range.
- III. The difference in the medians between the first and third distributions is equal to the interquartile range of the second distribution.

- (A) I and II
- (B) I and III
- (C) II and III
- (D) I, II, and III
- (E) None of the above gives the complete set of true responses.

11) Which of the following are true statements?

- I. All three are symmetric.
- II. The first is skewed to the left while the third is skewed to the right.
- III. The second is skewed on both sides.

- (A) I only
- (B) II only
- (C) III only
- (D) II and III
- (E) None of the above gives the complete set of true responses.

## Free Response

- 1) The following represents the street price of a random sample of point-and-shoot digital cameras (rounded to the nearest dollar):

217	590	178	420	320	995	160
362	192	385	1210	165	460	177
724	221	210	263	250		

Use a boxplot and a histogram to discuss the shape and characteristics of this distribution including outliers, symmetry, median, and mean.

- 2) In 1980 automobile registrations by states ranged from a low of 262,000 (Alaska) to a high of 16,873,000 (California) with a median of 2,329,000 (Iowa), a 25th percentile of 834,000, and a 75th percentile of 3,749,000. In 1990 the registrations ranged from 462,000 (Vermont) to 21,926,000 (California) with a median of 2,649,000 (Oklahoma), a 25th percentile of 1,054,000, and a 75th percentile of 4,444,000. Draw parallel boxplots and compare the distributions. Comment on whether or not any of the six named states are outliers in their respective distributions.