

This Question: 1 pt

Ethan and Drew went on a 10-day fishing trip. The number of smallmouth bass caught and released by the two boys each day is shown in the accompanying data table. Complete parts (a) and (b).

 Click the icon to view the data table.

(a) Find the population mean and the range for the number of smallmouth bass caught per day by each fisherman. Do these values indicate any differences between the two fishermen's catches per day?

The range for the number of smallmouth bass caught per day by Ethan is .

The population mean for the number of smallmouth bass caught per day by Ethan is .

(Simplify your answer.)

The range for the number of smallmouth bass caught per day by Drew is .

The population mean for the number of smallmouth bass caught per day by Drew is .

(Simplify your answer.)

Do these values indicate any differences between the two fishermen's catches per day?

☐ Yes

☒ No

(b) Find the population standard deviation for the number of smallmouth bass caught per day by each fisherman. Do these values present a different story about the two fishermen's catches per day? Which fisherman has the more consistent record?

The population standard deviation for the number of smallmouth bass caught per day by Ethan is . (Round to the nearest tenth as needed.)

The population standard deviation for the number of smallmouth bass caught per day by Drew is . (Round to the nearest tenth as needed.)

Do these values present a different story about the two fishermen's catches per day?

☐ Yes

☐ No

Which fisherman has the more consistent record?

☐ Ethan

☐ Drew

Click to select your answer(s).

Question 7

Data Table

Ethan	9	24	8	9	5	8	9	10	8	10
Drew	14	2	4	18	20	1	17	2	19	3

Question 1 chart

Suppose that a customer is purchasing a car. He conducts an experiment in which he puts 10 gallons of gas in the car and drives it until it runs out of gas. He conducts this experiment 15 times on each car and records the number of miles driven.

Full data set

Car 1				
247	213	217	218	248
253	280	245	284	245
256	248	253	242	276

Car 2				
223	210	236	228	251
161	236	258	157	268
264	316	311	298	263

Sample mean for Car 1

$$\bar{x} = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Sample mean for Car 2

$$\bar{x} = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Median for Car 1

$$M = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Median for Car 2

$$M = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Range for Car 1

$$R = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Range for Car 2

$$R = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Sample standard deviation for Car 1

$$s = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Sample standard deviation for Car 2

$$s = \square \text{ mi} / 10 \text{ gal}$$

(Type an integer or decimal rounded to one decimal place as needed.)

Which car would the customer buy and why?

☐ A. Car 1, because it has a lower sample standard deviation, hence more predictable gas mileage.

☐ B. Car 1, because it has a lower mean gas mileage.

☐ C. Car 2, because it has a larger range of gas mileage.

o very little difference

Question 2

This Question: 1 pt

Scores of an IQ test have a bell-shaped distribution with a mean of 100 and a standard deviation of 18. Use the empirical rule to determine the following.

- (a) What percentage of people has an IQ score between 46 and 154?
- (b) What percentage of people has an IQ score less than 46 or greater than 154?
- (c) What percentage of people has an IQ score greater than 118?

(a) % (Type an integer or a decimal.)

(b) % (Type an integer or a decimal.)

(c) % (Type an integer or a decimal.)

Question 3

Enter your answer in each of the answer boxes.

Suppose the data represent the inches of rainfall in April for a certain city over the course of 20 years.

- (a) Determine the quartiles.
 (b) Compute the interquartile range, IQR.
 (c) Determine the lower and upper fences. Are there any outliers, according to this criterion?

0.63	2.29	3.85	5.95
1.11	2.77	4.28	6.16
1.45	2.96	4.68	6.55
1.67	3.31	5.05	6.97
2.11	3.66	5.53	7.22

(a) What are the quartiles?

$$Q_1 = \square$$

(Round to three decimal places as needed.)

$$Q_2 = \square$$

(Round to three decimal places as needed.)

$$Q_3 = \square$$

(Round to three decimal places as needed.)

$$(b) \text{ IQR} = \square$$

(Round to three decimal places as needed.)

$$(c) \text{ The lower fence is } \square$$

(Round to three decimal places as needed.)

$$\text{The upper fence is } \square$$

(Round to three decimal places as needed.)

Are there any outliers in the given data set?

- ☐ A. No, all the values are between the lower and upper fences.
☐ B. Yes, there are values above the upper fence and below the lower fence.
☐ C. Yes, there are values below the lower fence.
☐ D. Yes, there are values above the upper fence.

What are the outliers? Select the correct choice below and fill in any answer boxes in your choice.

- ☐ A. The outlier(s) is/are $\square$. (Use a comma to separate answers as needed.)

Click to select your answer(s).

Question 4
 B. There are no outliers

The accompanying data represent the pulse rates (beats per minute) of nine students. Treat the nine students as a population. Compute the z-scores for all the students. Compute the mean and standard deviation of these z-scores.

 Click the icon to view the data table.

Compute the z-scores for all the students. Complete the table.

Student	z-score	Student	z-score
Student 1		Student 6	
Student 2		Student 7	
Student 3		Student 8	
Student 4		Student 9	
Student 5			

(Round to the nearest hundredth as needed.)

Compute the mean of these z-scores.

The mean of the z-scores is . (Round to the nearest tenth as needed.)

Compute the standard deviation of these z-scores.

The standard deviation of the z-scores is . (Round to the nearest tenth as needed.)

Question 5

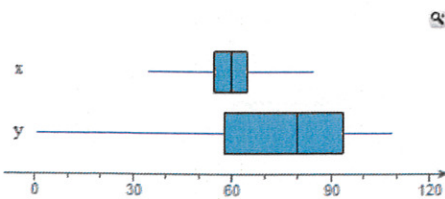
Pulse Rates



Student	Pulse
Student 1	76
Student 2	60
Student 3	60
Student 4	80
Student 5	72
Student 6	80
Student 7	80
Student 8	68
Student 9	73

Question 5 Chart

Use the side-by-side boxplots shown to complete parts (a) through (e).



(a) To the nearest integer, what is the median of variable x?

The median of variable x is .

(b) To the nearest integer, what is the third quartile of variable y?

The third quartile of variable y is .

(c) Which variable has more dispersion?

- ☐ Variable x has more dispersion.
- ☐ Variable y has more dispersion.
- ☐ Both dispersions are equal.

(d) Describe the shape of the variable x. Choose the correct answer below.

- ☐ Symmetric
- ☐ Skewed right
- ☐ Skewed left

(e) Describe the shape of the variable y. Choose the correct answer below.

- ☐ Skewed right
- ☐ Symmetric

Question 6

Click to select your answer(s).

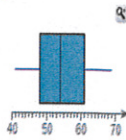
The data represent the age of world leaders on their day of inauguration. Find the five-number summary, and construct a boxplot for the data. Comment on the shape of the distribution.

67	46	47	53
50	53	50	46
67	61	51	54
43	57	48	

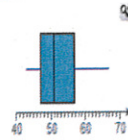
The five-number summary is .

Choose the correct boxplot of the data below.

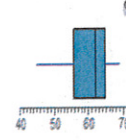
☐ A.



☐ B.



☐ C.



Choose the correct description of the shape of the distribution.

- ☐ A. The distribution is skewed to the right.
- ☐ B. The distribution is skewed to the left.
- ☐ C. The distribution is roughly symmetric.
- ☐ D. The shape of the distribution cannot be determined from the boxplot.

Question 11

A man surveyed a sample of 36 high school students and asked, "How many days in the past week have you consumed an alcoholic beverage?" The results of the survey are shown to the right. Use these results to answer parts (a) through (f).

0	1	0	0	0	0
1	0	0	1	0	4
1	5	1	2	0	1
2	0	1	1	0	1
2	0	1	0	1	0
0	1	1	2	3	2

- ☐ A. The mean should be substantially smaller than the median.
☐ B. The mean should be roughly equal to the median.
☒ C. The mean should be substantially larger than the median.

(d) Compute the mean and median. What does this tell you?

The mean is .

(Type an integer or decimal rounded to two decimal places as needed.)

The median is .

(Type an integer or decimal rounded to two decimal places as needed.)

What do the computed mean and median tell you? Fill in the blanks below. (Use a 25% difference as the criterion for a "substantial" difference between the mean and median.)

The prediction was because the mean the median in this distribution.

(e) Determine the mode.

The mode is .

(Type an integer or decimal rounded to two decimal places as needed.)

Question

(f) Does the survey suffer from sampling bias? Why or why not?

- ☐ A. No the survey does not suffer from sampling bias because the students were chosen at random and surveyed by someone they didn't know.
☐ B. Yes the survey suffers from sampling bias because it would be difficult to achieve truthful responses to this type of question unless the identity of the respondents is anonymous.
☐ C. Yes the survey suffers from sampling bias because the number of male and female students surveyed was not the same.
☐ D. No the survey does not suffer from sampling bias because there is no misleading information given in the survey.