

Lesson 16 Practice Problems

1. Here are the statistics for the high temperatures in a city during October:

- mean of 65.3 degrees Fahrenheit
- median of 63.5 degrees Fahrenheit
- standard deviation of 9.3 degrees Fahrenheit
- IQR of 7.1 degrees Fahrenheit

Recall that the temperature C , measured in degrees Celsius, is related to the temperature F , measured in degrees Fahrenheit, by $C = \frac{5}{9}(F - 32)$.

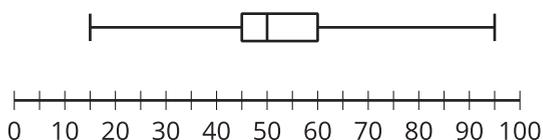
- a. Describe how the value of each statistic changes when 32 is subtracted from the temperature in degrees Fahrenheit.

- b. Describe how the value of each statistic further changes when the new values are multiplied by $\frac{5}{9}$.

- c. Describe how to find the value of each statistic when the temperature is measured in degrees Celsius.

(From Unit 1, Lesson 15.)

2. Here is a box plot.



Give an example of a box plot that has a greater median and a greater measure of variability, but the same minimum and maximum values.

(From Unit 1, Lesson 15.)

3. The mean vitamin C level for 20 dogs was 7.6 milligrams per liter, with a standard deviation of 2.1 milligrams per liter.

One dog's vitamin C level was not in the normal range. It was 0.9 milligrams per liter, which is a very low level of vitamin C.

- a. If the value 0.9 is eliminated from the data set, does the mean increase or decrease?

- b. If the value 0.9 is eliminated from the data set, does the standard deviation increase or decrease?

(From Unit 1, Lesson 14.)

4. The data set represents the number of hours that fifteen students walked during a two-week period.

6	6	7	8	8	8	9	10
10	12	13	14	15	16	30	

The median is 10 hours, Q1 is 8, Q3 is 14, and the IQR is 6 hours. Are there any outliers in the data? Explain or show your reasoning.

(From Unit 1, Lesson 14.)

5. Here are some summary statistics about the number of accounts that follow some bands on social media.

- mean: 15,976 followers
- median: 16,432 followers
- standard deviation: 3,279 followers
- Q1: 13,796
- Q3: 19,070
- IQR: 5,274 followers

a. Give an example of a number of followers that a very popular band might have that would be considered an outlier for this data. Explain or show your reasoning.

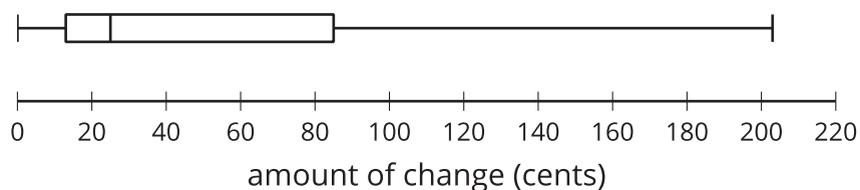
b. Give an example of a number of followers that a relatively unknown band might have that would be considered an outlier for this data. Explain or show your reasoning.

(From Unit 1, Lesson 14.)

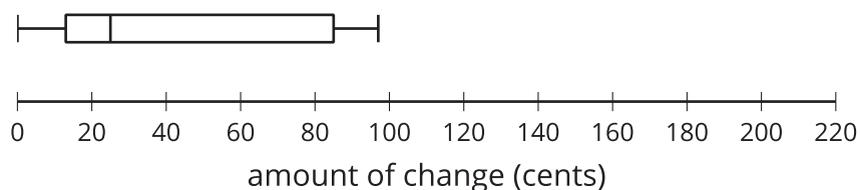
6. The weights of one population of mountain gorillas have a mean of 203 pounds and standard deviation of 18 pounds. The weights of another population of mountain gorillas have a mean of 180 pounds and standard deviation of 25 pounds. Andre says the two populations are similar. Do you agree? Explain your reasoning.

(From Unit 1, Lesson 13.)

7. The box plot represents the distribution of the amount of change, in cents, that 50 people were carrying when surveyed.



The box plot represents the distribution of the same data set, but with the maximum, 203, removed.



The median is 25 cents for both plots. After examining the data, the value 203 is removed since it was an error in recording.

- a. Explain why the median remains the same when 203 cents was removed from the data set.

- b. When 203 cents is removed from the data set, does the mean remain the same? Explain your reasoning.

(From Unit 1, Lesson 10.)