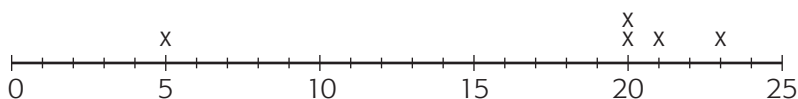


Frequently Asked Questions

Q: How can you identify an outlier in a set of data?

A: You can plot the data in a line plot or on a graph. Look for values that are far apart from the other values. For example, consider the following set of data: 5, 20, 21, 20, 23. For this set of data, the value 5 is an outlier.



Q: What is the effect on the mean, median, and mode when you don't include an outlier?

A: The mean and the median may change slightly. The mode is unlikely to change. For example, consider the following set of data: 5, 20, 21, 20, 23. For this set of data, the mean is 17.8, the median is 20, and the mode is 20. When the outlier, 5, is not included, the mean is 21, the median is 20.5, and the mode is 20. These results represent the data better.

Q: When would you use the mode, mean, or median to represent a set of data?

- A:** In some situations, all three measures may represent the data well. In other situations, you may need to choose which measure will represent the data best. For example:
- Use the mode when the data are not numerical or when you are interested in which value occurs most often.
 - Use the mean when you think all the values should be considered. For example, the mean of 77%, 88%, 75%, and 80% is 80%.

- You might choose to use the median when most of the values are together, but there are some outliers. For instance, suppose the ages of 11 cousins in a family are 11, 12, 12, 12, 13, 13, 14, 14, 14, 25, and 31. The median age, 13, represents the data better than the mean age, 16.

Practice

Lesson 8.1

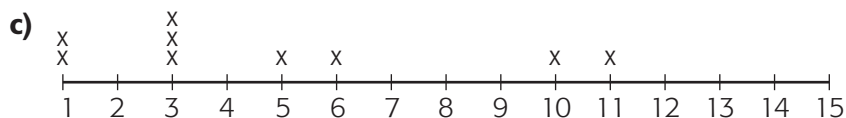
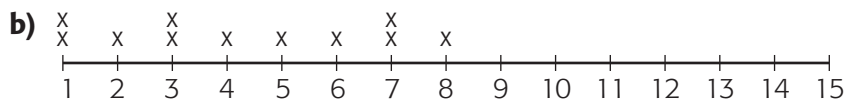
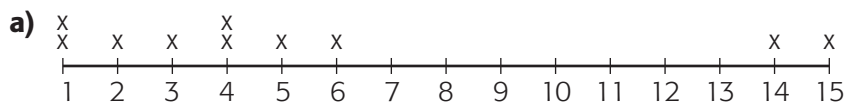
- Determine the range of each set of data.
 - 25, 87, 92, 29, 33, 98, 19, 33, 45
 - 446, 440, 440, 442, 444, 442, 440, 443, 440

Lesson 8.2

- Determine the median and mode of each set of data.
 - 4, 8, 8, 9, 3, 4, 4
 - 125, 83, 115, 94, 109, 115, 89, 104

Lesson 8.3

- Rosa is in a bowling league. She had these scores: 132, 118, 122, 106, 94, 94, 112, 118, 104, 120, 108, 104, 96, 122, 130, 116, 104, 118, 106, 124
 - Display Rosa's scores on a line plot.
 - Determine the range of her scores.
 - Determine the mean of her scores.
- Calculate the means and medians of 1, 2, 3, ..., 15 and 1, 2, ..., 21. What do you notice?
- Each line plot shows the number of books that have been read by students in a reading club. Does the mean, median, or mode represent each set of data best?



Lesson 8.4

6. Why might you use the mean to describe the average monthly temperature in your community, but the mode to describe the pant size that a store sells most often?

Lesson 8.5

7. The following numbers of rooms are rented at a hotel each night for two weeks:
35, 44, 40, 37, 33, 45, 34, 34, 43, 99, 38, 39, 43, 48
- a) Identify the outlier.
- b) The hotel manager will use the mean of the data to predict the number of rooms to prepare each night. Should the hotel manager use the mean with the outlier or without it?

Lesson 8.6

8. Sandra asks 20 people entering a music store how old they are. Here are her results:
17, 25, 33, 38, 24, 8, 45, 27, 27, 15, 26, 37, 8, 4, 38, 14, 42, 17, 25, 31
- a) Represent her data in a graph.
- b) Would you use the mean, median, or mode to describe the most common age of the people entering the music store? Explain.
9. These are Shirley's golf scores this year:
118, 112, 116, 120, 112, 117, 96, 90, 90, 92, 81, 83, 92, 92, 92, 90
- a) Determine the mean, mode, and median of Shirley's golf scores.
- b) Which measure represents Shirley's golf scores the best? Explain your choice.
10. A bookstore offers a "scratch-and-win" card to each customer who buys more than \$50 worth of books. One thousand cards are worth \$5 each. One hundred cards are worth \$10 each. Ten cards are worth \$20 each, and one card is worth \$1000. Which measure—the mean, median, or mode—best represents the average value of a card? Explain your choice.