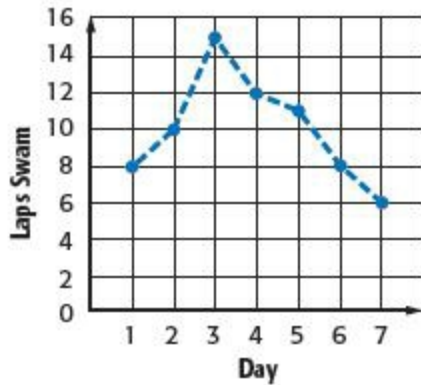


## 11-2 Median and Mode

Find and compare median and mode for the set of data.



2.

**SOLUTION:**

Median: Order the data from least to greatest.

6, 8, 8, 10, 11, 12, 15

The middle value is 10.

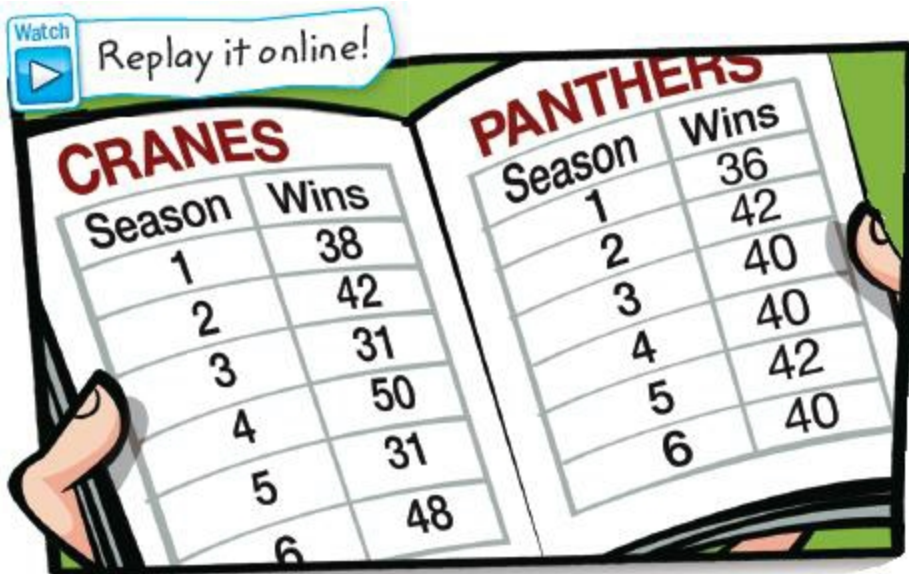
Mode: The value that occurs most is 8.

The median is 2 laps more than the mode.

**ANSWER:**

median: 10; mode: 8; The median is 2 laps more than the mode.

4. **Model with Mathematics** Refer to the graphic novel frame for Exercises a–b.



## 11-2 Median and Mode



- Find the median and mode for each team's wins.
- Which team had the better record? Justify your response.

**SOLUTION:**

**a.**

**Cranes:**

Order the data from least to greatest.

31, 31, 38, 42, 48, 50

Median: There is an even number of data values, so the median is the mean of the middle two numbers.

$$\begin{aligned}\frac{38 + 42}{2} &= \frac{80}{2} \\ &= 40\end{aligned}$$

The median is 40.

Mode: The number that occurs most is 31.

**Panthers:**

Order the data from least to greatest.

36, 40, 40, 40, 42, 42

Median: There is an even number of data values, so the median is the mean of the middle two numbers.

$$\begin{aligned}\frac{40 + 40}{2} &= \frac{80}{2} \\ &= 40\end{aligned}$$

The median is 40.

Mode: The number that occurs most is 40.

**b.** Sample answer: The Panthers had the better record. Even though the mean and median are the same, the Panthers' mode is higher.

**ANSWER:**

**a.** Cranes: median: 40, mode: 31; Panthers: median: 40, mode: 40

**b.** Sample answer: The Panthers had the better record. Even though the mean and median are the same, the Panthers' mode is higher.

## 11-2 Median and Mode

6. **Use Math Tools** Use the Internet to find the high temperatures for each of the last seven days in a city near you. Then find the median high temperature.

**SOLUTION:**

Sample Answer: The data set represents the temperature of Memphis, Tennessee over the past week.

Median: Order the data from least to greatest.

71, 72, 73, 77, 77, 78, 78

The median is the middle number of the data set.

The median is 77.

**ANSWER:**

See student's work.

8. **Construct an Argument** One evening at a local pizzeria, the following number of toppings were ordered on each large pizza.

3, 0, 1, 1, 2, 5, 4, 3, 1, 0, 0, 1, 1, 2, 2, 3, 6, 4, 3, 2, 0, 2, 1, 3

Determine whether each statement is *true* or *false*. Explain your reasoning.

a. The greatest number of people ordered a pizza with 1 topping.

b. Half the customers ordered pizzas with 3 or more toppings, and half the customers ordered pizzas with less than 3 toppings.

**SOLUTION:**

a. True. The mode of the data set is 1 because it is the value that occurs most often.

b. Order the data from least to greatest.

0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 2, 3, 3, 3, 3, 3, 4, 4, 5, 6

Median: There is an even number of data values, so the median is the mean of the middle two numbers.

$$\begin{aligned}\frac{2+2}{2} &= \frac{4}{2} \\ &= 2\end{aligned}$$

The median is 2.

The statement is false. The median of the data is 2, so half the customers ordered pizzas with more than 2 toppings and half ordered pizzas with less than 2 toppings.

**ANSWER:**

a. True; the mode of the data set is 1.

b. False; the median of the data is 2.

10. **Model with Mathematics** Create a list of six values where the mean, median, and mode are 45, and only two of the values are the same.

**SOLUTION:**

Sample answer: 42, 43, 45, 45, 47, 48

**ANSWER:**

Sample answer: 42, 43, 45, 45, 47, 48

## 11-2 Median and Mode

**Find and compare median and mode for the set of data.**

12. minutes spent on homework: 18, 20, 22, 11, 19, 18, 18

**SOLUTION:**

Order the data from least to greatest.

11, 18, 18, 18, 19, 20, 22

Median: The value in the middle is 18.

Mode: The value that occurs most is 18.

The median and mode are equal.

**ANSWER:**

18; 18; The median and mode are equal.

14. Describe the test grades using the measures of center.

Test Grades			
100	77	80	65
87	85	85	82
100	97	95	75

**SOLUTION:**

$$\text{mean: } \frac{100+87+100+77+85+97+80+85+95+65+82+75}{12} = 85.67$$

median: 65, 75, 77, 80, 82, 85, 85, 87, 95, 97, 100, 100

The middle number is 85.

modes: 85 and 100

The mean, 85.67, and median, 85, are very close. One of the modes, 85, is equal to the median, but the other is the highest score. The data follows the measures of center in that they are close to the measures of center.

**ANSWER:**

The mean, 85.67, and median, 85, are very close. One of the modes, 85, is equal to the median, but the other is the highest score. The data follows the measures of center in that they are close to the measures of center.

## **11-2 Median and Mode**

16. The list of data shows the number of schools in 12 different counties.

4	3	6	10
3	14	8	5
7	11	7	8

Arrange the data values in order from least to greatest.

What are the two middle numbers in the data set?

What is the median number of schools in the 12 counties.

**SOLUTION:**

In order the numbers are: 3, 3, 4, 5, 6, 7, 7, 8, 8, 10, 11, 14

The two middle numbers are: 7,7

The median is 7.

**ANSWER:**

3, 3, 4, 5, 6, 7, 7, 8, 8, 10, 11, 14

7,7

7

**Find the greatest number in the data set.**

18. {23, 35, 31, 28, 26, 34}

**SOLUTION:**

Using place value, the greatest number is 35.

**ANSWER:**

35

20. {78, 81, 79, 84, 82, 83}

**SOLUTION:**

Using place value, the greatest number is 84.

**ANSWER:**

84

## **11-2 Median and Mode**

**Find the least number in the data set.**

22. {24, 29, 22, 26, 23, 24}

**SOLUTION:**

Using place value, the least number is 22.

**ANSWER:**

22

24. The table shows the distances Mari biked each day. What is the greatest distance she biked during the week?

Day	Distance (miles)
Monday	5.2
Tuesday	3.5
Wednesday	4.9
Thursday	3.8
Friday	3.2

**SOLUTION:**

Using place value, the greatest distance she biked is 5.2 miles on Monday.

**ANSWER:**

5.2 miles