Lesson 9-2   Median and Mode

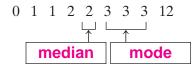| Lesson Objective	Common Core Standards
To find and analyze the median and mode of a data set	Statistics and Probability: 6.SP.3, 6.SP.5, 6.SP.5.c

Vocabulary

The median is **the middle number in a set of ordered data.**

The mode is **the the data item(s) that appear most often.**

$$0 \quad 1 \quad 1 \quad 2 \quad 2 \quad 3 \quad 3 \quad 3 \quad 12$$

median	mode

Example

❶ **Finding the Median** A bird-watcher keeps a count of the number of birds she sees each week. The results are 23, 35, 27, 55, 41, 23, 45, and 69. Find the median number of birds.

$$23, 23, 27, 35, 41, 45, 55, 69 \qquad \leftarrow \text{ Order the data.}$$

$$23, 23, 27, 35, 41, 45, 55, 69 \qquad \leftarrow \text{ Since there are 8 items (an even number),}$$
use the **two middle** values.

$$\frac{\boxed{35} + \boxed{41}}{2} = \frac{\boxed{76}}{2} = \boxed{38} \qquad \leftarrow \text{ Find the mean of } \boxed{35} \text{ and } \boxed{41}.$$

The median number of birds is $\boxed{38}$.

Quick Check

1. Weekly sales of comics at a store are 39, 19, 28, 9, 32, 35, and 17 comics. What is the median number of comics sold?

28

Examples

❷ Finding the Mode The list shows the favorite colors of 12 children. Find the mode.

blue, red, blue, yellow, yellow, blue, red, blue, yellow, blue, red, yellow

Group the data.

blue, blue, blue, blue, blue
red, red, red
yellow, yellow, yellow, yellow

| Blue | occurs the most. It is the | mode |.

❸ Analyzing Data The ages of everyone at a family reunion are listed. Find the mean, median, and mode. Which one best describes the typical age of the family members at the reunion?

22, 100, 26, 4, 30, 33, 21, 44, 47, 83, 47

mean $\dfrac{22 + 100 + 26 + 4 + 30 + 33 + 21 + 44 + 47 + 83 + 47}{\boxed{11}} = \dfrac{\boxed{457}}{\boxed{11}} \approx \boxed{41.55}$

median   4, 21, 22, 26, 30, 33, 44, 47, 47, 83, 100: $\boxed{33}$

mode $\boxed{47}$

The $\boxed{\text{median}}$ and the $\boxed{\text{mode}}$ are only close to some of the data points.

The mean best describes the typical age of the family members at the reunion.

Quick Check

2. The list shows the favorite lunches of 15 students. How many students would have to switch from hamburger to taco as their favorite lunch for taco to be the only mode?

hamburger, pizza, taco, pizza, spaghetti, taco, spaghetti, hamburger, hamburger, pizza, taco, pizza, pizza, spaghetti, taco

2 students

3. The top five women's 1-meter diving scores are 288.75, 261.83, 254.85, 254.1, and 246.8. Does the mean, median, or mode best describe these data? Explain.

Sample: The median is the best measure. 288.75 is an outlier that affects the mean, and there is no mode.