

Mean, Median, Mode, and Range

(Pages 104–109)

Numbers known as **measures of central tendency** are often used to describe sets of data because they represent the center or middle of the data. The most commonly-used measures of central tendency are the **mean**, **median**, and **mode**. **Measures of variation**, such as **range**, are used to describe the *distribution* of the data.

Mean	The mean of a set of data is the sum of the data divided by the number of pieces of data.
Median	The median of a set of data is the middle number when the numbers in the set are arranged in numerical order. If there is an odd number of values, the middle one is the median. If there is an even number of values, the median is the average of the two middle values.
Mode	The mode of a set of data is the number that occurs most often in the set. There may be 1 mode, no mode, or several modes.
Range	The range of a set of data is the difference between the greatest and the least values of the set.

EXAMPLE

Find the mean, median, mode, and range for the data in this stem-and-leaf plot.

mean $(21 + 22 + 22 + 80 + 85 + 111 + 112 + 113 + 234 + 237) \div 10$
or 103.7

median The two middle values are 85 and 111, and their average is $(85 + 111) \div 2$ or 98.

mode The value that occurs most often in the set is 22.

range The greatest value is 237 and the least is 21. The range is $237 - 21$ or 216.

Stem	Leaf	
2	1 2 2	
8	0 5	
11	1 2 3	
23	4 7	2317 = 237

PRACTICE

Find the mean, median, mode, and range for each set of data.

1.

Stem	Leaf	
4	2 2	
5	3 5 6	
6	1 4	
7	9 9	719 = 79

2.

Stem	Leaf	
22	0 1 9	
23	4	
24	2 2 8	
25	3 6 7	2213 = 223

3. 4, 8, 1, 23, 11, 34, 3

4. 11, 18, 13, 18, 19, 2

5. 24, 24, 46, 41, 56, 97

6. 3.6, 7.9, 10.1, 9.8, 4.1, 2.0



7. **Standardized Test Practice** Which six numbers have a mean of 9, a median of 9, a mode of 9, and a range of 9?

A 9, 9, 10, 9, 9, 9

B 5, 8, 9, 9, 9, 14

C 2, 4, 6, 8, 10, 12

D 9, 9, 2, 4, 8, 6

Answers: 1. 59; 56; 42 and 79; 37 2. 240.2; 242; 242; 37 3. 12; 8; none; 33 4. 13.5; 15.5; 18; 17 5. 48; 43.5; 24; 73 6. 6.25; 6; none; 8.1 7. B