

# Statistics

Data Set: 15, 25, 7, 12, 14, 20, 18, 13, 8, 18, 14, 28

**Mean:** To find the mean of a data set, add the data values and divide by the number of data values.

$$\text{Mean} = \bar{x} = \frac{\sum x_i}{n} = \frac{\text{Add all values}}{\text{Total numbers in the data set}}$$

$$\text{Mean} = \bar{x} = \frac{15 + 25 + 7 + 12 + 17 + 20 + 18 + 13 + 8 + 18 + 14 + 28}{12} = \frac{192}{12} = 16$$

**Median:** To find the median of a data set, arrange the data values in order from least to greatest or greatest to least; the median is the data value in the middle; if there is an even number of data values in the set, the median is the mean of the two middle values.

n = number of data values.

n odd: Median is the middle number in an ordered data set.

n even: Median is the average of the two middle values.

EX1: n even

Median: 7, 8, 12, 13, 14, 14, 15, 18, 18, 20, 25, 28 (values placed in ascending order)

Median: 7, 8, 12, 13, 14, **14**, **15**, 18, 18, 20, 25, 28 (values in the middle)

$$\text{Median: } \frac{14+15}{2} = 14.5$$

EX2: n odd

Median: 60, 60, 70, 95, 95, 96, 100 (values placed in ascending order)

Median: 60, 60, 70, **95**, 95, 96, 100 (value in the middle)

Median = 95

**Mode:** The mode of a data set is the value or values that occur most often. If no values occur more than others, there is no mode.

Ex1:

Find the mode of the data set: : 15, 25, 7, 12, **14**, 20, **18**, 13, 8, **18**, **14**, 28

Mode: 14 & 18 both occur twice

Mode = 14 & 18

Ex2:

Find the mode of the data set: 45, 73, 12, 80

Mode: no data value occurs more often than others

Mode: There is no mode.

**Range:** The range of a data set is the difference between the greatest value in the data set and the least data value in the data set.

Range = maximum value – minimum value

Find the range of the data set: : 15, 25, 7, 12, 14, 20, 18, 13, 8, 18, 14, 28

The greatest value (maximum value) = 28

The least value (minimum value) = 7

Range = 28 – 7

Range = 21