



For these examples we will be using two different sets of numbers.

**Set A:**

13, 10, 4, 12, 20, 14, 18

When dealing with statistics it is often easier to put the data in order (smallest to largest).

4, 10, 12, 13, 14, 18, 20

**Set B:**

10, 23, 2, 7, 9, 15, 7, 20

2, 7, 7, 9, 10, 15, 20, 23

**Mean (aka. Average):**

To find the 'Mean' of a set of numbers take the sum of all the numbers and divide it by the quantity of numbers.

$$4 + 10 + 12 + 13 + 14 + 18 + 20 = 91$$

$$91 \div 7 = \mathbf{13}$$

$$2 + 7 + 7 + 9 + 10 + 15 + 20 + 23 = 93$$

$$93 \div 8 = \mathbf{11.6}$$

**Median:**

The 'Median' of a set of numbers is the value that is in the center. In set A, the median is **13**.

4, 10, 12, 13, 14, 18, 20



2, 7, 7, 9, 10, 15, 20, 23



Since set B has no number in the middle the median is the average of the two center numbers (9 & 10).

Set B's median is **9.5** ( $19 \div 2$ ).

**Range:**

The 'Range' of a set of numbers is the difference between the largest and smallest amount.

4, 10, 12, 13, 14, 18, 20

$$20 - 4 = \mathbf{16}$$

2, 7, 7, 9, 10, 15, 20, 23

$$23 - 2 = \mathbf{21}$$

**Quartiles**

To find the quartiles of a set, split the set into quarters (4ths). Set B's quartiles are between numbers, so the average of the numbers is used.

4, 10, 12, 13, 14, 18, 20

Q1: **10**

Q2: **13**

Q3: **18**

2, 7, 7, 9, 10, 15, 20, 23

Q1:  $14 \div 2 = \mathbf{7}$

Q2:  $19 \div 2 = \mathbf{9.5}$

Q3:  $35 \div 2 = \mathbf{17.5}$

**Interquartile Range**

The 'Interquartile Range' is the difference between the first quarter and the third quarter (see above).

4, 10, 12, 13, 14, 18, 20

$$18 - 10 = \mathbf{8}$$

2, 7, 7, 9, 10, 15, 20, 23

$$17.5 - 7 = \mathbf{10.5}$$

**Mean Absolute Deviation**

The 'Mean Absolute Deviation' is the mean of the numbers distance from the mean.

Number	Distance from Mean (13)
4	9
10	3
12	1
13	0
14	1
18	5
20	7

$$9 + 3 + 1 + 0 + 1 + 5 + 7 = 26$$

$$26 \div 7 = \mathbf{3.7}$$

Number	Distance from Mean (11.6)
2	9.6
7	4.6
7	4.6
9	2.6
10	1.6
15	3.4
20	8.4
23	11.4

$$9.6 + 4.6 + 4.6 + 2.6 + 1.6 + 3.4 + 8.4 + 11.4 = 46.2$$

$$46.2 \div 8 = \mathbf{5.8}$$