Mean and Range

Mean

The **mean** is the **average**. The **average** is an important measure of **central tendency** for a series of values.

If you wanted to know the average of two Math test results like **80%** and **90%**, you would add them together and divide by 2:

$$\text{Average} = \frac{80 + 90}{2}$$

$$= \frac{170}{2}$$

$$= 85\%$$

Mean - Example 2

If we want to find the average of 3 test results like **60**, **76**, and **80**, we would add them together and divide by 3:

$$\text{Average} = \frac{60 + 76 + 80}{3}$$

$$= \frac{216}{3}$$

$$= 72\%$$

So, the average of the three tests would be 72%.

Mean General Formula

The general formula for the **average** or the **mean** can be written as:

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \ldots + x_n}{n}$$

where

$\bar{x}$ = mean or average
x_1 = 1st number
x_2 = 2nd number
$\vdots$
x_n = last number
n = # of terms to be averaged

Let's use this formula to redo the previous example.

$x_1 = 60 \qquad x_2 = 76 \qquad x_3 = 80$

$n = 3$

$$\bar{x} = \frac{x_1 + x_2 + x_3}{n}$$

$$\bar{x} = \frac{60 + 76 + 80}{3}$$

$$= \frac{216}{3}$$

$$= 72\%$$

Range

To calculate the range for a set of numbers, we need to identify the **minimum** and **maximum value** in the number set.

For example, identify the minimum value and the maximum value for the following number set.

For set S :

S = { 4, 7, 12, 14, 16, 20 }

minimum maximum

Minimum Value = 4

Maximum Value = 20

To calculate the range, we use the formula:
Range = Max – Min

For set S, the range is : Range = 20 – 4 = 16

So, the range is **16** for set S.