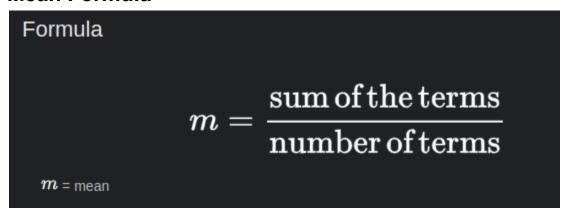
## **Assignment 3 - AKICS - Python Class**

- Q1. Calculate the mean, standard deviation, and variance of a given array of numbers [2, 7, 3, 12, 9] using *for loop*
- Q2. Calculate the mean, standard deviation, and variance of a given array of numbers [2, 7, 3, 12, 9] using a *while loop*
- Q3. Calculate the sum of the first  $\mathbf{n}$  natural numbers where  $\mathbf{n} = 50000$  using for loop
- Q4. Given a target element **target = 55** and an array **marks = [33, 65, 90, 45, 55.5, 88, 90, 98, 75, 45, 55, 55.1, 55.4, 45.8, 88, 90, 76, 53]** find if the **target** element is in the marks list using **for loop**
- Q5. Solve **Q4** using a **while loop**
- Q6. From the list of marks given in **Q4** find the number of students who have scored **more than 70 marks**

#### Mean Formula



#### **Standard Deviation Formula**

### Formula

$$\sigma = \sqrt{rac{\sum (x_i - \mu)^2}{N}}$$

 $\sigma$  = population standard deviation

 ${\it N}$  = the size of the population

 $oldsymbol{x_i}$  = each value from the population

 $\mu$  = the population mean

### Variance Formula

# Formula

$$S^2=rac{\sum (x_i-ar{x})^2}{n-1}$$

 $S^2$  = sample variance

 $oldsymbol{x_i}$  = the value of the one observation

 $ar{m{x}}$  = the mean value of all observations

 $\boldsymbol{n}$  = the number of observations