Arithmetic Progression (AP)

In this lesson, we'll learn about arithmetic progression.

We'll cover the following

Arithmetic progression is a sequence of numbers such that the difference between each consecutive term is constant, commonly denoted by d. For example:

$3, 5, 7, 9, ...$

Here, the first term, a, is 3, $a = 3$, and the common difference, d, is 2, $d = 2$. In general, AP is

$a, a + d, a + 2d, ..., a + (n - 1)d$

where nth term $a_n = a + (n - 1)d$

Sum

Sum of AP with n terms is

$a + (a + d) + (a + 2d) + ... + (a + (n - 1)d)$

= $na + d(1 + 2 + 3 + ... + n - 1)$

= $na + d(\frac{n(n-1)}{2})$

= $\frac{n}{2}[2a + d(n - 1)]$

In the next lesson, we'll learn about geometric progression.