5 Arithmetic Progression

Q→ What is A P ?

Ans. → whose common difference is same.

a → first term

n → number of terms

n^{th} term → a_n

d → common difference

l → last term

Sum of n terms → S_n

* $a_n = a + (n-1)d$

(n^{th} term)

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

* $S_n = \frac{n}{2}(a + l)$

(Sum of n terms)

$a_1 = S_1$

$a_2 = S_2 - S_1$

$a_3 = S_3 - S_2$

* $a_n = S_n - S_{n-1}$

A.P.: a, $a+1d$, $a+2d$, $a+3d$, $a+4d$, $a+5d$

a_1, a_2, a_3, a_4, a_5, a_6 .....

$d = a_2 - a_1$

$d = a_3 - a_2$

$d = a_4 - a_3$

6^{th} term $\longrightarrow a_6$

7^{th} term $\longrightarrow a_7$

n^{th} term $\longrightarrow a_n$

Sum of 3 terms $= S_3$

Sum of 5 terms $= S_5$

Sum of n terms $= S_n$

odd :-

3 terms

$a-d$, a $a+d$

5 terms

$a-2d$ $a-d$ a $a+d$ $a+2d$

7 terms

$a-3d$ $a-2d$ $a-d$ a $a+d$ $a+2d$ $a+3d$

Even :-

4 terms

$a-3d$, $a-d$, $a+d$, $a+3d$

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6 terms

$a-5d$, $a-3d$, $a-d$, $a+d$, $a+3d$, $a+5d$