

Arithmetic Progressions



(i)
$$4,7,10,13,16 \rightarrow AP$$

(iv)
$$\frac{2}{5}$$
, $\frac{7}{5}$, $\frac{8}{18}$, $\frac{25}{18}$, $\frac{25}{18}$, $\frac{25}{18}$



Arithmetic Progressions



Ap: + 4,7,10,13,16.

First term

fixed number = d = (ommon-Difference = 3

first term = a

$$Q_1 = 4 = 0$$

 $Q_2 = 7 = 4 + 3 = 0 + d$
 $Q_3 = 10 = 4 + 3 + 3 = 4 + 2(3) = 0 + 2d$
 $Q_4 = 13 = 4 + 3 + 3 + 3 = 4 + 3(3) = 0 + 3d$

(ommon-Difference)

 $d = a_2 - a_1$ $d = a_3 - a_2$ $d = a_4 - a_3$ $d = a_{n-1}$





Write first four terms of the AP, when the first term a and the common difference d are given as follows:





For the given AP, write the first term and the common difference: -5, -1, 3, 7, ...

$$a = 0$$

$$d = 0_2 - 0_1 = -1 - (-5)$$

$$= -1 + 5$$

$$(1 = 4)$$



(1) d= a2-a, = 4-2=2

d= 93-92=8-4=4

It is not an AP X



Which of the following are APs? If they form an AP, find the common difference d and write three more terms.

(ii) $\sqrt{2}$, $\sqrt{8}$, $\sqrt{18}$, $\sqrt{32}$, ...

$$\sqrt{2}$$
, $\sqrt{8}$, $\sqrt{18}$, $\sqrt{32}$, ... $\sqrt{2}$, $\sqrt{3}$, $\sqrt{3}$, $\sqrt{2}$,

$$d = a_{4} - a_{3}$$

$$= \sqrt{32} - \sqrt{18}$$

$$= \sqrt{4x4x2} - 3\sqrt{2}$$

$$= \sqrt{4x4x2} - 3\sqrt{2}$$

$$= \sqrt{2}$$
It is an AP.





Which term of the AP: 3, 15, 27, 39, ... will be 132 more than its 54th term?

$$Q_{1} = Q_{1} + 132$$

$$Q_{1} + (n-1)d = Q_{1} + 53d + 132$$

$$(n-1)12 = 33(12) + 132$$

$$(n-1)12 = 36 + 132$$

$$(n-1)12 = 768$$

$$n-1 = 768 = 64$$

$$12$$





Find the 20th term from the last term of the AP: 3, 8, 13, ..., 253.



Sum of first n terms of an AP



Ap: -> 2,4,6,8,10..., 100

Ap: -> 2+4+6+8+10+..+100

$$S_{n} = \frac{n}{2} [2a+(n-1)d]$$
 $S_{n} = \frac{n}{2} [a+0+(n-1)d]$
 $S_{n} = \frac{n}{2} [a+0+(n-1)d]$

QUESTION

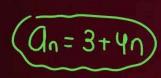




Show that $(a_1)(a_2) \dots (a_n) \dots$ form an AP where a_n is defined as below:

$$a_n = 3 + 4n$$

Also find the sum of the first 15 terms in each case



a=7

No/1:-