

1: $a_n = -4n + 15 \rightarrow$ General term.

$a_1 = -4(1) + 15 = 11$

$a_2 = -4(2) + 15 = 7$

$a_3 = -4(3) + 15 = 3$

$a_4 = -4(4) + 15 = -1$

Sequence of AP = 11, 7, 3, -1

2: $a_n = 6n + 11 \rightarrow$ n^{th} term.

$d =$ common difference $= a_n - a_1$

$a_{n-1} = 6(n-1) + 11$

$= 6n - 6 + 11 = 6n + 5$

$\therefore d = (6n + 1) - (6n + 5) = 6$

3: A.P = 9, 7, 5, ... n^{th} term.

n^{th} term $= a_n = a_1 + (n-1)d$

$= 9 + (n-1)(-2)$

$= 9 - 2n + 2 = 11 - 2n$

AP $= 15, 12, 9, \dots$ n^{th} term.

n^{th} term $= a_n = a_1 + (n-1)d_2$

$= 15 + (n-1)(-3)$

$= 15 - 3n + 3 = 18 - 3n$

\odot ATP, $a_n = a_n$

$11 - 2n = 18 - 3n$

$n = 7$

4: ~~eqn~~ $a_7 = a + 7d = 3$... (i)

$a_{15} = a + 14d = 16 + a_7 = 16 + a + 7d$

$\therefore a + 14d = 16 + a + 7d$

$\Rightarrow 7d = 16$

$\Rightarrow d = \frac{16}{7}$

Putting in eq (i) $a + 7(\frac{16}{7}) = 3$
 $a = 3 - 16$
 $a = -13$

$$\text{AP} = a, a+d, a+2d, a+3d, \dots \\ = 3, 7, 11, 15, \dots$$

$$5) \text{ AP} = 1, 3.5, 6, 8.5, \dots$$

$$d = 3.5 - 1 = 6 - 3.5 = 2.5$$

$$a = 1$$

$$a_{10} = a + 9d \\ = 1 + 9(2.5) = 22.5 + 1 = 23.5$$

6) Sum of 1st 10 natural no's

$$1 + 2 + 3 + \dots + 9 + 10$$

$$= \frac{n(n+1)}{2} = \frac{10(10+1)}{2} = \frac{10 \times 11}{2} = 55$$