

$$t_n = 5, 9, 13, 17, \dots \quad a_n = 5 + (n-1)4 \rightarrow 5 + 4n - 4 \rightarrow t_n = 4n + 1$$

الف) $t_n = 4n + 1$

ب) $t_1 = 4 \times 1 + 1 = 5$

$$t_n = 4, 10, 16, 22, \dots \quad a_n = 4 + (n-1)6 \rightarrow a_n = 4 + 6n - 6 \rightarrow t_n = 6n - 2$$

الف) $S_{10} = 5(a_1 + a_{10}) = 5 \times 24 = 120$

ب) $4 \times 8 = 32 \rightarrow a_9 + a_4 + a_7 + a_{10} = 32$

از این جمله این $a_9 + a_4 + d + a_4 + 3d + a_4 + 4d = 4a_4 + 7d = 4a_4 + 28 = 32$

$$1 + \sqrt{3}, 2, 3 - \sqrt{3}, \dots \quad \left. \begin{aligned} a_{25} &= \sqrt{3}(-23) = -23\sqrt{3} \\ a_{13} &= \sqrt{3}(-11) = -11\sqrt{3} \end{aligned} \right\} \text{افضلان}$$

$$d = 2 - 1 - \sqrt{3} = 1 - \sqrt{3}$$

$$a_n = a_1 + (n-1)d$$

$$a_n = 1 + \sqrt{3} + (n-1)(1 - \sqrt{3}) \rightarrow 1 + \sqrt{3} + n - 1 - n\sqrt{3} + \sqrt{3} = 2\sqrt{3} - n\sqrt{3} = \sqrt{3}(2-n)$$

$$a_n = \Delta^{2n}, 3 \times \Delta^{2n}, \Delta^y \rightarrow 4 \times \Delta^{2n} = \Delta^{2n} + \Delta^y \rightarrow 4 = 1 + \Delta^{y-2n} \rightarrow \Delta = \Delta^{y-2n}$$

$$\begin{cases} y - 2n = 1 \\ n + y = 4 \end{cases} \Rightarrow y = 3, n = 1$$

$b_n = n, 2, y \rightarrow 4 = n + y$

$$r_n = 2, 2n-1, 4n, \dots \rightarrow -3, 0, 3, \dots \quad a_n = -3 + (n-1)3$$

$a_4 = -3 + (3)3 = 6$

$t_n - 2 = 12n - 2$

$2 = 12n \rightarrow n = \frac{1}{6}$

$a_n = 3, 5, 7, \dots$ $b_n = 2, 5, 8, \dots$ $\text{مشتق} = 5, 11, 17, \dots$ $\text{مشتق} = 1, 4, 9, \dots$	$a_n = 2n + 1 \rightarrow 3, 5, 7, \dots, a_r = 41$ $a_n = 3n - 1 \rightarrow 2, 5, 8, \dots, a_r = 29$ $a_n = 4n - 1$ $5 \leq 4n - 1 \leq 41$ $4 \leq 4n \quad 4n \leq 42$ $n \geq 1 \quad n \leq 10.5$ $\Rightarrow 1 \leq n \leq 10 \rightarrow \text{جمله 10 اشتباه دارد}$	6
$a_1 + a_r + a_p = 21$ $a_1 + a_r + a_5 = 10.5$	$\left. \begin{aligned} 3a_1 + 3d &= 21 \\ 3a_1 + 9d &= 10.5 \end{aligned} \right\} \begin{aligned} 3d &= 14 \\ d &= 14/3 \end{aligned}$ $a_1 = -21$ $a_r - a_r + a_1 = 4a_1 \rightarrow -21 \rightarrow 4 = n \times -21 \rightarrow n = \frac{-1}{4}$ $a_1 + 3d - a_1 - d + a_1 = a_1 + d = -21 + 14 = -7$	7
$S_p = 15$ $a_f + a_5 = 25$ $a_1 + 3d + a_1 + 4d = 25$ $2a_1 + 7d = 25$ $a_1 + d = 5$ $a_1 + 4d = 25$ $a_1 + d = 5$	$S_p = \frac{p}{2}(a_1 + a_r) = 15 \rightarrow a_1 + a_p = 10 \rightarrow 2a_1 + 2d = 10$ $a_1 + d = 5 \rightarrow a_r = 5$ $a_{10} = (4 \times 10) - 3 = 37$ $a_1 = 1$ $\left. \begin{aligned} a_1 + 4d &= 25 \\ a_1 + d &= 5 \end{aligned} \right\} \rightarrow 3d = 20 \rightarrow d = \frac{20}{3}$ $a_n = 1 + (n-1)f$ $a_n = 1 + \frac{20}{3}(n-1) \rightarrow a_n = \frac{20}{3}n - \frac{17}{3}$	8
$a_1 \neq 0$ $S_9 = 9 S_p \rightarrow \frac{9}{2}(2a_1 + 8d) = 9 \times \frac{p}{2}(2a_1 + 2d) = 9(a_1 + d) = 9(a_1 + 3d)$ $\frac{a_r}{a_v} = \frac{a_1 + 19d}{a_1 + 4d} = \frac{a_1 + 19a_1}{a_1 + 19a_1} = \frac{20a_1}{20a_1} = 1$	$a_1 + 3d = 3(a_1 + d)$ $3d = 2a_1 + 3d$ $d = 2a_1$	9
$a_1 = 11$ $b_1 = 38$	$a_f = 14 + 3 = 17$ $a_v = 35 \rightarrow a_1 + 4d = 35 \rightarrow 4d = 24 \rightarrow d = 6 \rightarrow a_n = 6n + 5$ $b_f = 23 \rightarrow b_1 + 3d = 23 \rightarrow 3d = 20 \rightarrow d = \frac{20}{3}$ $d_b = -5$ $b_n = -5n + 38$ $d = \frac{b-a}{k+1} \rightarrow \frac{13-38}{k+1} = \frac{-25}{k+1} = -5$ $5k + 5 = 25 \rightarrow 5k = 20 \rightarrow k = 4$	10