

الف) $t_n = 4n + 1$ $t_n = 5, 9, 13, 17, \dots$

ب) $t_{10} = 10 \times 4 + 1 = 41$

الف) مجموع ۱۰ جمله اول

$t_n = 4, 8, 12, 16, 20, 24, 28, 32, 36, 40$

۳۸

همه اول و آخر و سوم

۴۱

۴۱

$\frac{n}{2} = (a_n + a_1) = \frac{10}{2} (40 + 4) = 220$

همه دوم: $t_n = 4n + 2$ همه اول: $t_n = 4n + 1$

ب) مجموع ۱۰ جمله دوم و سوم

$t_{10} = 4 \times 10 + 2 = 42$

$t_{10} = 4 \times 10 + 1 = 41$

$t_{10} = 4 \times 10 + 2 = 42$

$t_{10} = 4 \times 10 + 1 = 41$

$t_n = 1 + \sqrt{3}, 2, 3 - \sqrt{3} \rightarrow d = 1 - \sqrt{3}$

$t_{10} = 1 + \sqrt{3}, t_{11} = 2, t_{12} = 3 - \sqrt{3}$

$t_{12} - t_{11} = 2 - (1 + \sqrt{3}) = 1 - \sqrt{3}$

اعضای همه ۲، ۳، ۴، ۵

$a_n = 2^{2n}, 2^{2n-1}, 2^{2n-2}, \dots$

$2^{2n} \times 2^{2n-1} = 2^{4n-1}$

$2^{2n-1} = 2^y \rightarrow 2n-1 = y$

$xy = 2 \times 1 = 2$

$b_n = x, 2, y \rightarrow 2 \frac{x+y}{2} \rightarrow x+y = 4$

$2x - y = -1$

$2x = 3$

$x = 1.5$

$y = 2.5$

$2x - 1, 2n - 1, 4n, t$

$(2x - 1) + 2 = 4n$

$2x + 1 = 4n \rightarrow 2x = 4n - 1 \rightarrow x = 2n - 0.5$

$t = 2x + 3 = 4n - 1 + 3 = 4n + 2$

$$a_n = 2, 5, 7, 9, \dots \rightarrow a_n = 2n + 1 \rightarrow 2 \times 20 + 1 = 41 \quad \text{د. ص. د. 13}$$

$$b_n = 2, 5, 1, 11, \dots \rightarrow b_n = 2n - 1 \rightarrow 2 \times 20 - 1 = 39$$

$$\left. \begin{array}{l} 4n - 1 \leq 41 \rightarrow 4n \leq 42 \rightarrow n \leq 10.5 \\ 4n - 1 \leq 39 \rightarrow 4n \leq 40 \rightarrow n \leq 10 \end{array} \right\} \Rightarrow n \leq 10$$

6

$$a_1 + a_r + a_r = 21 \rightarrow a_r = d \times a_r + a_r + d = 21 \rightarrow 2a_r = 21 \rightarrow a_r = 10.5$$

$$a_1 + a_r + a_r = 10.5 \rightarrow a_r = 2d = a_r + a_r + 2d \rightarrow 2a_r = 10.5 \Rightarrow a_r = 5.25$$

$$d = a_r - a_1 = 5.25 - 2 = 3.25$$

$$a_1 = a_r - d = 5.25 - 3.25 = 2 \rightarrow a_r - a_r + a_1 = 5.25 - 3.25 - 2 = 0 \Rightarrow \frac{V}{-11} = -\frac{1}{11}$$

7

$$a_1 + a_r + a_r = 10 \rightarrow 2a_1 + 2d = 10 \rightarrow a_1 + d = 5$$

$$a_1 + a_r = 2d \rightarrow 2a_1 + 2d = 2d \rightarrow a_1 = 0$$

$$a_{10} = a_1 + 9d = 0 + 9 \times 5 = 45$$

$$\begin{cases} d = 5 \\ a_1 = 0 \end{cases}$$

8

$$S_9 = 9S_r \rightarrow \frac{9}{r}(a_1 + a_9) = 9 \times \frac{r}{r} \times (a_1 + a_r) \rightarrow \frac{9}{r}a_1 + \frac{9}{r}a_9 = \frac{9}{r}a_1 + \frac{9}{r}a_r$$

$$\frac{9}{r}a_9 = \frac{9}{r}a_r \rightarrow a_9 = a_r$$

$$\frac{1}{r}(a_1 + 8d) = \frac{r}{r}(a_1 + 8d) = a_1$$

$$\frac{1}{r}a_1 + 8d = a_1 \rightarrow 8d = a_1 - \frac{1}{r}a_1 \rightarrow a_1 = \frac{8d}{1 - \frac{1}{r}}$$

$$\frac{a_1 + 8d}{a_1} = \frac{\frac{8d}{1 - \frac{1}{r}} + 8d}{\frac{8d}{1 - \frac{1}{r}}} = \frac{\frac{8d}{1 - \frac{1}{r}} + 8d}{\frac{8d}{1 - \frac{1}{r}}} = \frac{1 + 8(1 - \frac{1}{r})}{1 - \frac{1}{r}} = \frac{1 + 8 - \frac{8}{r}}{1 - \frac{1}{r}} = \frac{9 - \frac{8}{r}}{1 - \frac{1}{r}} = \frac{9r - 8}{r - 1} = 9$$

9

$$t_1 = 11 \rightarrow t_{11} + 10d = 39 \Rightarrow 10d = 39 - 11 \Rightarrow d = 2.8$$

$$b_1 = 20 \rightarrow b_n = 10$$

$$b_1 + 2d = 10 \rightarrow 2d = 10 - 20 \rightarrow d = -5$$

$$d = \frac{b_n - b_1}{n - 1} = \frac{10 - 20}{11 - 1} = \frac{-10}{10} = -1$$

10