

$$\begin{aligned} t_1 = 2 = t_1 \quad t_3 = (2 \times 9) - 1 = 17 \quad t_5 = (2 \times 25) - 1 = 49 \\ (3 \times 4) - 1 = 11 = t_2 \quad t_4 = (3 \times 12) - 1 = 35 \end{aligned}$$

$$\left. \begin{aligned} t_1 = \frac{2+1}{1+2} = \frac{3}{3} \\ t_2 = \frac{4+1}{2+4} = \frac{5}{6} \\ t_3 = \frac{9}{3+9} = \frac{1}{4} \\ t_4 = \frac{9}{4+12} = \frac{9}{16} \\ t_5 = \frac{11}{9} \end{aligned} \right\} \frac{3}{3}, \frac{5}{6}, \frac{1}{4}, \frac{9}{16}, \frac{11}{9}$$

$$t_{13} = \frac{(-1)^{13}}{\sqrt{13+3}} = -\frac{1}{\sqrt{16}} = -\frac{1}{4}$$

$$t_{13} = 2 \times 13 - \left[\frac{13}{4} \right] \Rightarrow 26 - 3 = 23$$

$$t_n = 2n - 10 \rightarrow 2n - 10 < 0 \rightarrow 2n < 10 \rightarrow n < 5 \rightarrow n = 1, 2, 3, 4$$

جمله ی منفی دارد

$$n^2 - 14n + 40 \xrightarrow{\text{تجزیه}} (n-4)(n-10) < 0 \rightarrow \frac{4}{+} \frac{10}{-} \rightarrow 4 < n < 10$$

جمله ی مثبت

$$t_n = 2n - 14 \rightarrow 2n - 14 \leq 0 \rightarrow 2n \leq 14 \rightarrow n \leq 7$$

جمله ی مثبت

$$n^2 - 12n + 27 \xrightarrow{\text{تجزیه}} (n-3)(n-9) \leq 0 \rightarrow \frac{3}{+} \frac{9}{-} \rightarrow 3 \leq n \leq 9$$

جمله ی مثبت

$$\begin{cases} t_2 = 2a + b = 7 \\ t_9 = 9a + b = 22 \end{cases}$$

$$5a = 15$$

$$a = 3 \rightarrow 2(3) + b = 7 \rightarrow b = -1$$

$$t_3 = 3a + b \rightarrow 3(3) - 1 = 8$$

$t_n = n=1 \rightarrow 1-4+2 = -1$ $t_2 = 14-2^2+2 = -1$ و ... $t_n = n=2 \rightarrow 4-12+2 = -6$ $t_n = n=3 \rightarrow 9-18+2 = -7$ کمترین $t_1 = 1+4+1 = 6$ کمترین $t_2 = 4+8+1 = 13$ $t_3, t_4, \dots$	الف) ۶
$\textcircled{1} \quad -4, -7, -1, -7, -4, \dots$ $a = \frac{d}{r} = \frac{r}{r} = 1$ $c = a_0$ $\underbrace{-4}_{-a} \quad \underbrace{-7}_{-r} \quad \underbrace{-1}_{-1} \quad \underbrace{-7}_{+1} \quad \underbrace{-4}_{+r}$ $\underbrace{\quad}_{+2} \quad \underbrace{\quad}_{+2} \quad \underbrace{\quad}_{+2}$ $d=2$ $an^2 + bn + c$ $\frac{d}{r}$ $a + b + c = -4$ $1 - 4 + 1 = -2$ $b = -4$ $\left. \begin{array}{l} \\ \\ \end{array} \right\} n^2 - 4n + 1$ $t_{10} = 10^2 - 4 \cdot 10 + 1 = 41$	۷
$\textcircled{2} \quad -5, -4, -1, 8, 21, \dots$ اگر درجه ۲ است $a = \frac{d}{r} = \frac{r}{r} = 2$ $c = a_0 = 5$ $\underbrace{-5}_{+1} \quad \underbrace{-4}_{+5} \quad \underbrace{-1}_{+9} \quad \underbrace{8}_{+13}$ $\underbrace{\quad}_{r} \quad \underbrace{\quad}_{r} \quad \underbrace{\quad}_{r}$ $d=4$ $an^2 + bn + c$ $a + b + c = -4$ $2 - 4 + 5 = 3$ $b = -1$ $\left. \begin{array}{l} \\ \\ \end{array} \right\} 2n^2 - n - 5$	۸
$2a+1 \leq a+4 \rightarrow a \leq 3$	۹
$3, 4, 9, \dots, 99 \rightarrow 3n \rightarrow 3n \leq 99 \rightarrow n = 33$ الف) $5, 15, 25, \dots, 100 \rightarrow 5n \rightarrow 5n \leq 100 \rightarrow n = 20$ ب) ۱۰ $15, 35, 55, \dots, 90 \rightarrow 15n \rightarrow 15n \leq 90 \rightarrow n = 6$ ج) ۲	الف) ۱۰ ج) ۲

$\left. \begin{array}{l} 33 \text{ عدد بر ۳ بخش پذیر است} \\ 20 \text{ عدد بر ۵ بخش پذیر است} \\ 6 \text{ عدد بر ۳ و ۵ بخش پذیر است} \end{array} \right\} 33 + 20 - 6 = 47$ د)