

$$t_n = 3n^2 - 1 \quad t_1 = 3(1)^2 - 1 = 2 \quad t_2 = 3(2)^2 - 1 = 11 \quad t_3 = 3(3)^2 - 1 = 26 \quad -1$$

$$t_4 = 3(4)^2 - 1 = 47 \quad t_5 = 3(5)^2 - 1 = 74$$

$$t_n = \frac{3n+1}{n+2} \quad t_1 = \frac{3(1)+1}{(1)+2} = \frac{4}{3} \quad t_2 = \frac{3(2)+1}{(2)+2} = \frac{7}{4} \quad t_3 = \frac{3(3)+1}{(3)+2} = \frac{10}{5} = 2$$

$$t_4 = \frac{3(4)+1}{(4)+2} = \frac{13}{6} \quad t_5 = \frac{3(5)+1}{(5)+2} = \frac{16}{7}$$

$$t_n = \frac{(-1)^n}{\sqrt{n+3}} \quad t_{13} = \frac{(-1)^{13}}{\sqrt{13+3}} = \frac{-1}{4} = -\frac{1}{4} \quad -2$$

$$t_n = 2n - \left[\frac{n}{2} \right] \quad t_{13} = \frac{2(13)}{2} - \left[\frac{13}{2} \right] = 14$$

$$t_n = 2n - 10 = 2(n-5) \quad \begin{array}{c} 5 \\ - \quad | \quad + \\ 1 \end{array} \quad t_1, t_2, t_3, t_4 \rightarrow \text{نمی} \quad -3$$

$$t_n = n^2 - 14n + 40 \quad \begin{array}{c} 14 \quad 10 \\ + \quad | \quad - \quad | \quad + \\ 4 \quad 10 \end{array} \quad t_5, t_6, t_7, t_8, t_9 \rightarrow \text{نمی} \quad \text{جمله}$$

$$t_n = 2n - 18 = 2(n-9) \quad \begin{array}{c} 18 \\ - \quad | \quad + \\ 1 \end{array} \quad t_1, t_2, t_3, t_4, t_5, t_6, t_7, t_8, t_9 \rightarrow \text{نمی} \quad -4$$

$$t_n = n^2 - 12n + 27 \quad \begin{array}{c} 12 \quad 9 \\ + \quad | \quad - \quad | \quad + \\ 3 \quad 9 \end{array} \quad t_3 \text{ تا } t_9 \quad \text{نمی} \rightarrow \text{جمله}$$

$$\left. \begin{aligned} t_p &= a + 2d = 7 \\ t_q &= a + 11d = 22 \end{aligned} \right\} \begin{aligned} 5d &= 15 \\ d &= 3 \\ a &= -2 \end{aligned} \quad t_p = (-2) + 2(d) = 2$$

$$t_n = n^2 - 9n + 2 \rightarrow \begin{cases} -\frac{b}{2a} = -\frac{(-9)}{2} = 4.5 \\ (3)^2 - 9(3) + 2 = -7 \end{cases}$$

$$t_n = n^2 + 2n + 1 \rightarrow \begin{cases} -\frac{b}{2a} = -\frac{(2)}{2} = -1 \rightarrow n \text{ نمی توانی بشی} \\ (1)^2 + 2(1) + 1 = 4 \end{cases}$$

$$t_n = -4, -7, -11, -16, -21, \dots \quad 1n^2 + (-4)n + 1 = t_n$$

$\xrightarrow{-4} \xrightarrow{-3} \xrightarrow{-1} \xrightarrow{+1} \xrightarrow{+3}$
 $\xrightarrow{+2} \xrightarrow{+2} \xrightarrow{+2} \xrightarrow{+2} \rightarrow 2a = 2$
 $\boxed{b = -4} \quad \boxed{a = 1}$
 $\boxed{c = 1}$

$$t_n = -9, -1, 1, 9, \dots \quad t_n = 2n^2 - n - 7$$

$\xrightarrow{+1} \xrightarrow{+4} \xrightarrow{+9} \xrightarrow{+16}$
 $\xrightarrow{+2} \xrightarrow{+2} \xrightarrow{+2} \rightarrow 2a = 2$
 $\boxed{b = -1} \quad \boxed{a = 2}$
 $\boxed{c = -7}$

$$2a + 1 = a + 2 \quad a + 2 < 2a + 1 \quad 2 \leq a$$

$a = 3$
 $2 < a$

الف) $3, 6, 9, \dots, 99 \rightarrow 2n = 99 \quad n = 49.5 \quad \boxed{3}$

ب) $5, 10, 15, \dots, 95 \rightarrow 5n = 95 \quad n = 19 \quad \boxed{19}$

ج) $15, 20, 25, \dots, 90 \rightarrow t_n = 15n = 90 \quad n = 6 \quad \boxed{6}$

د) $23 + 19 - 9 = 33$