

$$t_n = 2n^2 - 1 \quad t_1 = 2(1)^2 - 1 = 1 \quad t_2 = 2(2)^2 - 1 = 7 \quad t_3 = 2(3)^2 - 1 = 11 \quad -1$$

$$t_4 = 2(4)^2 - 1 = 15 \quad t_5 = 2(5)^2 - 1 = 19 \quad \checkmark$$

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

$$t_3 = \frac{2(3)+1}{(3)+2} = \frac{7}{5} \quad t_4 = \frac{2(4)+1}{(4)+2} = \frac{9}{6} = \frac{3}{2} \quad \checkmark$$

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

$$t_n = 2n - \left[\frac{n}{2} \right] \quad t_{13} = \frac{2(13)}{2} - \left[\frac{13}{2} \right] = 13 - 6 = 7 \quad \checkmark$$

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

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

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

$$t_n = n^2 - 12n + 27 \quad \begin{array}{c} 12 \quad 27 \\ + \quad | \quad - \quad | \quad + \end{array} \quad t_3, t_4, t_5, t_6, t_7, t_8, t_9 \rightarrow \text{نمی} \quad \checkmark$$

$$\begin{cases} t_p = a + 2d = 7 \\ t_q = a + 1d = 22 \end{cases} \rightarrow \begin{cases} 5d = 15 \\ d = 3 \\ a = -2 \end{cases} \quad t_p = (-2) + 2(d) = 2$$

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

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

$$t_n = -4, -7, -1, -7, -4, \dots \rightarrow \begin{cases} 1n^2 + (-4)n + 1 = t_n \\ 100 - 40 + 1 = 61 \end{cases}$$

$$t_n = -9, -1, 1, 9, \dots \rightarrow \begin{cases} t_n = 2n^2 - n - 7 \\ 2a = 2 \\ a = 1 \\ b = -9 \\ c = 1 \end{cases}$$

$$\begin{aligned} 2a + 1 &= a + 2 \\ a &= 1 \\ a + 2 &< 2a + 1 \\ 2 &< a \end{aligned} \quad 2 \leq a$$

$$\begin{aligned} \text{الف)} & 3, 6, 9, \dots, 99 \rightarrow 2n = 99 \quad n = 49.5 \quad \checkmark \\ \text{ب)} & 5, 10, 15, \dots, 95 \rightarrow \left[\frac{100}{5} \right] = 20 \quad n = 19 \\ \text{ج)} & 15, 20, 25, \dots, 90 \rightarrow t_n = 15n - 10 \quad n = 9 \quad \checkmark \\ \text{د)} & 23 + 19 - 9 = 33 \\ n(A \cup B) &= n(A) + n(B) - n(A \cap B) = 23 + 19 - 9 = 33 \end{aligned}$$