

۱) $t_n = 3n^2 - 1$ عمرگذاری $t_1 = 3 \times 1 - 1 = 2$, $t_2 = 3 \times 4 - 1 = 11$, $t_3 = 3 \times 9 - 1 = 26$, $t_4 = 3 \times 16 - 1 = 47$

جواب: ۲، ۱۱، ۲۶، ۴۷

۲) $t_n = \frac{n(n+1)}{n+2}$ عمرگذاری $t_1 = \frac{1}{3}$, $t_2 = \frac{2}{5}$, $t_3 = \frac{3}{7}$, $t_4 = \frac{4}{9}$, $t_5 = \frac{5}{11}$

جواب: $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{7}$, $\frac{4}{9}$, $\frac{5}{11}$

۳) $t_n = \frac{(-1)^n}{\sqrt{n+2}}$ $\rightarrow (-1)^1 = -1$ $\rightarrow \frac{-1}{\sqrt{4}} = -\frac{1}{2}$

۴) $t_n = 2n - \left\lfloor \frac{n}{2} \right\rfloor$ $\rightarrow 2 \times 16 - \left\lfloor \frac{16}{2} \right\rfloor = 26 - 8 = 18$

۵) $t_n = 2n - 1$ $\rightarrow 2(n-5) < 0$ $\rightarrow n < 5$ $\rightarrow n = 1, 2, 3, 4$

۶) $t_n = n^2 - 14n + 40$ $\rightarrow (n-10)(n-4)$ $\rightarrow n = 4, 10$

۷) $t_n = 2n - 12$ $\rightarrow 2(n-6) < 0$ $\rightarrow n < 6$ $\rightarrow n = 1, 2, 3, 4, 5$

۸) $t_n = n^2 - 12n + 27$ $\rightarrow (n-9)(n-3)$ $\rightarrow n = 3, 9$

۹) $t_4 = 4a + b = 1$, $t_9 = 9a + b = 2$ $\rightarrow 5a = 1$ $\rightarrow a = \frac{1}{5}$ $\rightarrow b = -\frac{3}{5}$

جواب: $\frac{1}{5}$

۱۰) $t_n = n^2 - 4n + 2$ $\rightarrow a > 0$ $\rightarrow \frac{-b}{2a} = \frac{-(-4)}{2} = 2$

$t_3 = 3^2 - 4 \times 3 + 2 = 9 - 12 + 2 = -1$

۱۱) $t_n = n^2 + 8n + 1$ $\rightarrow a > 0$ $\rightarrow \frac{-b}{2a} = \frac{-8}{2} = -4$

$t_{-4} = (-4)^2 + 8 \times (-4) + 1 = 16 - 32 + 1 = -15$

