

الف) $t_n = 3n^2 - 1 \rightarrow t_1 = 3 \times (1)^2 - 1 \rightarrow t_1 = 2$ $t_2 = 3 \times (2)^2 - 1 \rightarrow t_2 = 11$ $t_3 = 3 \times (3)^2 - 1 \rightarrow t_3 = 26$
 $t_4 = 3 \times (4)^2 - 1 \rightarrow t_4 = 47$ $t_5 = 3 \times (5)^2 - 1 \rightarrow t_5 = 74$ دنباله $\rightarrow 2, 11, 26, 47, 74, \dots$

ب) $t_n = \frac{2n+1}{n+2} \rightarrow t_1 = \frac{2(1)+1}{1+2} \rightarrow t_1 = \frac{3}{3} = 1$ $t_2 = \frac{2(2)+1}{2+2} \rightarrow t_2 = \frac{5}{4}$ $t_3 = \frac{2(3)+1}{3+2} \rightarrow t_3 = \frac{7}{5}$
 $t_4 = \frac{2(4)+1}{4+2} \rightarrow t_4 = \frac{9}{6} = \frac{3}{2}$ $t_5 = \frac{2(5)+1}{5+2} \rightarrow t_5 = \frac{11}{7}$ دنباله $\rightarrow \frac{3}{3}, \frac{5}{4}, \frac{7}{5}, \frac{9}{6}, \frac{11}{7}, \dots$

الف) $t_n = \frac{(-1)^n}{\sqrt{n+2}} \rightarrow t_{12} = \frac{(-1)^{12}}{\sqrt{12+2}} = \frac{1}{\sqrt{14}} = \boxed{\frac{1}{\sqrt{14}}}$

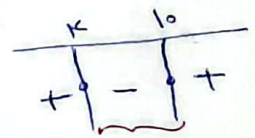
ب) $t_n = n - \lfloor \frac{n}{2} \rfloor \rightarrow t_{12} = 12 - \lfloor \frac{12}{2} \rfloor \rightarrow t_{12} = 12 - 6 = \boxed{6}$

الف) $t_n = 2n - 10 \rightarrow 2n - 10 < 0 \rightarrow 2n < 10 \rightarrow n < 5 \Rightarrow$

مجموعه ۴

ب) $t_n = n^2 - 12n + 20 \rightarrow n^2 - 12n + 20 < 0 \rightarrow (n-4)(n-10) < 0$

$4 < n < 10 \rightarrow 5 \leq n \leq 9$ $(9-5)+1 = 5$ مجموعه ۵

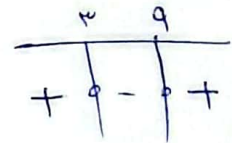


الف) $t_n = 2n - 14 \rightarrow 2n - 14 \leq 0 \rightarrow 2n \leq 14 \rightarrow n \leq 7 \Rightarrow$

مجموعه ۱

ب) $t_n = n^2 - 12n + 25 \rightarrow n^2 - 12n + 25 \leq 0 \rightarrow (n-3)(n-9) \leq 0$

$3 \leq n \leq 9 \rightarrow (9-3)+1 = 7$ مجموعه ۷



$t_4 = 5$ $t_9 = 22$ $t_7 = ?$ $t_9 = t_4 + 5d \rightarrow 22 = 5 + 5d \rightarrow 17 = 5d \rightarrow d = 3$

$t_7 = t_4 + d \rightarrow 5 = t_7 + 3 \rightarrow t_7 = 2$ جواب

الف) $t_n = \frac{n^2}{a} = \frac{6n}{b} + \frac{2}{c}$ Min $\rightarrow \frac{-b}{2a} \rightarrow \frac{-6}{2 \times \frac{1}{a}} = \frac{6}{a} = 3 \rightarrow a = 2$ $a_2 = (2)^2 - 6(2) + 2 \rightarrow a_2 = -6$ تسریع

ب) $t_n = \frac{n^2}{a} + \frac{6n}{b} + \frac{2}{c} \rightarrow$ Min $\rightarrow \frac{-b}{2a} = \frac{-6}{2 \times \frac{1}{a}} = -3 \rightarrow a_1 = (1)^2 + 6(1) + 1 \rightarrow a_1 = 8$ تسریع

$t_n = 4n^2 - 6n + 1$ $t_1 = 4(1)^2 - 6(1) + 1 = -1$ $t_2 = 4(2)^2 - 6(2) + 1 = 3$ $t_3 = 4(3)^2 - 6(3) + 1 = 13$ $t_4 = 4(4)^2 - 6(4) + 1 = 25$ $t_5 = 4(5)^2 - 6(5) + 1 = 39$ $t_6 = 4(6)^2 - 6(6) + 1 = 55$ $t_7 = 4(7)^2 - 6(7) + 1 = 73$ $t_8 = 4(8)^2 - 6(8) + 1 = 93$ $t_9 = 4(9)^2 - 6(9) + 1 = 115$ $t_{10} = 4(10)^2 - 6(10) + 1 = 139$

$2a = 2 \rightarrow a = 1$ $c = 1$

$t_1 = 1 + b + 1 \rightarrow -1 = 1 + b + 1 \rightarrow -3 = b$

دنباله درجه دوم: $an^2 + bn + c$

$t_{10} = (10)^2 - 6(10) + 1 \rightarrow t_{10} = 100 - 60 + 1 \rightarrow t_{10} = 41$

کلاس: دخترهفتم

با استفاده تشریحی تکرار: ۱۰

ناتوانی: آلاء و سید

$t_n = -6, -1, 4, 9, \dots$ $\rightarrow 2a = 4 \rightarrow a = 2$ $t_n = an^2 + bn + c \rightarrow -6 = 2 + b - 7$
 $c = -7$ $b = -1$
 $t_n = 2n^2 - n - 7$ جای عددی

$[2a+1, +\infty) \cap (-\infty, a+2] = \text{مجموعه} \rightarrow [a+3, 2a+1]$

$2a+1, a+3 \rightarrow a \geq 3$ $\rightarrow a \in [3, +\infty)$ عدد صحیح

اعداد فیبوناچی

$\frac{99-3}{3} + 1 = 33$

اعداد فیبوناچی

$\frac{100-d}{d} + 1 = 206$

$3, d \rightarrow \frac{n}{n(3, d)} \rightarrow 3 \times d = 15$

$\frac{90-1d}{1d} + 1 = 66$

$3, d \rightarrow \frac{U}{n(3) + n(d) - n(3, d)} \rightarrow 33 + 20 - 6 = 47$