

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

$\rightarrow 2, 11, 26, 47, 74$

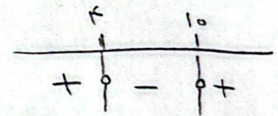
ب) $t_n = \frac{n+1}{n+4} \rightarrow t_1 = \frac{2(1)+1}{1+4} = \frac{3}{5}, t_2 = \frac{2(2)+1}{2+4} = \frac{5}{6}, t_3 = \frac{2(3)+1}{3+4} = \frac{7}{7} = 1, t_4 = \frac{2(4)+1}{4+4} = \frac{9}{8}, t_5 = \frac{2(5)+1}{5+4} = \frac{11}{9}$
 $\rightarrow \frac{3}{5}, \frac{5}{6}, 1, \frac{9}{8}, \frac{11}{9}$

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

ب) $t_n = 2n - \left\lfloor \frac{n}{4} \right\rfloor \rightarrow t_{13} = 2(13) - \left\lfloor \frac{13}{4} \right\rfloor = 26 - 3 = 23$

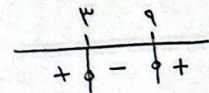
الف) $t_n = 2n - 10 \rightarrow 2n - 10 < 0 \rightarrow n < 5$: جمله اول

ب) $t_n = n^2 - 14n + 40 \rightarrow (n-4)(n-10) < 0 \rightarrow 4 < n < 10$: جمله ۵ تا ۹



الف) $t_n = 2n - 14 \rightarrow 2n - 14 < 0 \rightarrow n < 7$: جمله اول

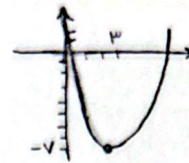
ب) $t_n = n^2 - 12n + 27 \rightarrow (n-3)(n-9) < 0 \rightarrow 3 < n < 9$: جمله ۴ تا ۸



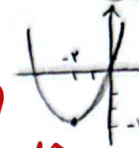
روش اول: $\begin{cases} V = a + 4d \\ 22 = a + 10d \end{cases} \Rightarrow 10d = 18 \rightarrow d = 3 \rightarrow V = a + 4 \rightarrow a = -2$
 $t_4 = 22 = 4a + 6d = 4(-2) + 6(3) = -8 + 18 = 10$

روش دوم: $t_4 = t_1 + 3d \rightarrow 22 = V + 3d \rightarrow d = 3 \rightarrow t_4 = t_1 + 3d = V + 9 = 10 \rightarrow V = -2$

الف) $t_n = n^2 - 4n + 2 \rightarrow \text{ext} = \left| \frac{-b}{2a} \right| \rightarrow \left| \frac{-(-4)}{2(1)} \right| = 2$ $\alpha > 0$ $\min \rightarrow$ $\text{نقطهٔ بحرانی} = (-V)$



ب) $t_n = n^2 + 4n + 1 \rightarrow \text{ext} = \left| \frac{-b}{2a} \right| \rightarrow \left| \frac{-4}{2(1)} \right| = -2$ $\alpha > 0$ $\min \rightarrow$ $\text{نقطهٔ بحرانی} = (-3)$



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مقادیر است که در آنجا $\rightarrow$ نقطهٔ بحرانی

۱) $(n=0)$ $-4, -7, -8, -7, -4, \dots$
 $-5 \quad -3 \quad -1 \quad +1 \quad +3$
 $+2 \quad +2 \quad +2 \quad +2$

$\rightarrow n^2 - 4n + 1 \rightarrow t_{10} = 100 - 40 + 1 = 61$

$t_1 = n^2 + bn + 1 = 1 + b + 1 = -4$
 $b = (-4)$

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-۷) $(n=0)$ $-6, -1, 8, 21, \dots$
 $+1 \quad +5 \quad +9 \quad +13$
 $+4 \quad +4 \quad +4$

$\rightarrow 2n^2 - n - 7$

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$t_1 = 2n^2 + bn - 7 = 2 + b - 7 = -4$
 $b = (-1)$

$(-\infty, a+f] \cap [2a+1, +\infty)$ متناهی $\rightarrow a+f \leq 2a+1 \rightarrow 3 \leq a \rightarrow [3, +\infty)$

به اشتراک = ϕ (خالی)

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$\left[\frac{100}{5} \right] = 20$ (ب)

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$\left[\frac{100}{3} \right] = 33$ (الف)

$33 + 20 - 4 = 49$ (د)

$\left[\frac{100}{15} \right] = 6$ (ج)