

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

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

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

ب) $t_n = 2n - \left[\frac{n}{4}\right]$ $t_{13} = 24 - \left[\frac{13}{4}\right] = 24 - [3.25] \rightarrow 24 - 3 = 21$

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الف) $t_n = 2n - 10 \rightarrow 2n - 10 < 0 \rightarrow 2n < 10 \rightarrow n < 5$ $1 \leq n \leq 4 \rightarrow (4-1)+1 = 4$

ب) $t_n = n^2 - 14n + 40$ $n^2 - 14n + 40 < 0 \rightarrow (n-10)(n-4) < 0$ $\frac{n}{an} \mid \frac{4}{4} - \frac{10}{10} +$ $4 < n < 10 \rightarrow (9-4)+1 = 5$ $4 < n < 9$

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الف) $t_n = 2n - 16 \rightarrow 2n - 16 < 0 \rightarrow 2n < 16 \rightarrow n < 8$ $1 \leq n \leq 7 \rightarrow (7-1)+1 = 7$

ب) $t_n = n^2 - 12n + 27$ $(n-3)(n-9) < 0$ $\frac{n}{an} \mid \frac{3}{3} - \frac{9}{9} +$ $3 < n < 9 \rightarrow (8-3)+1 = 5$ $3 < n < 9$

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$t_4 = 7$ $t_9 = 22$ $t_{13} = ?$ $t_n = (an+b)$

$t_4 = a(4) + b = 7$ $t_9 = a(9) + b = 22$

$t_{13} = a(13) + b = ?$

$\begin{cases} -7 = -5a + b \\ 22 = 9a + b \end{cases} \rightarrow 15 = 14a \rightarrow a = \frac{15}{14} \rightarrow b = -5$

$t_{13} = 3n - 5 \rightarrow t_{13} = 40 - 5 = 35$

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الف) $t_n = n^2 - 6n + 2 \rightarrow a > 0 \rightarrow \min$ $t_3 = 9 - 18 + 2 = -7$ $t_4 = 16 - 24 + 2 = -6$ $t_5 = 25 - 30 + 2 = -3$ $t_6 = 36 - 36 + 2 = 2$

ب) $t_n = n^2 + 4n + 1$ $a > 0 \rightarrow \min$ $t_1 = 1 + 4 + 1 = 6$ $t_2 = 4 + 8 + 1 = 13$ $t_3 = 9 + 12 + 1 = 22$ $t_4 = 16 + 16 + 1 = 33$ $t_5 = 25 + 20 + 1 = 46$

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بین مقادیر مقداران

این نقطه اوج است

$t_n = -4, -7, -10, -13, -16, \dots$

$t_n = an^2 + bn + c$ $t_1 = 1 + b + c = -4$ $t_2 = 4 + 2b + c = -7$ $t_3 = 9 + 3b + c = -10$

$a = -1$ $b = -2$ $c = -1$

$t_n = -n^2 - 2n - 1$

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$t_n = -6, -1, 4, 9, 14, \dots$

$t_n = an^2 + bn + c$ $t_1 = 1 + b + c = -6$ $t_2 = 4 + 2b + c = -1$ $t_3 = 9 + 3b + c = 4$

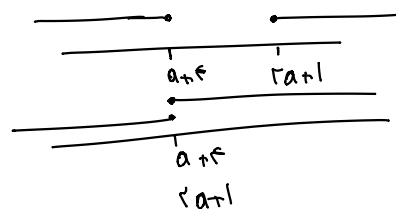
$a = 1$ $b = 8$ $c = -15$

$t_n = n^2 + 8n - 15$

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$$(-\infty, a+4] \cap [2a+1, +\infty)$$

$$a+4 \leq 2a+1 \rightarrow 4 \leq a$$



$$n(A \cup B) = n(A) + n(B) - n(A \cap B) \quad (2)$$

$$33 + 20 - 4 = 49$$

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

(الف)

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

(ب)

$$n(A \cap B) = \left[\frac{100}{15} \right] = 4$$

(ج)

استدلال