

میانگین

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$$1) \text{ الف } f_n = 3n^2 - 1$$

$$, 2, 11, 24, 45, 74, \dots$$

$$ب) f_n = \frac{n+1}{n+2} \quad \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}, \dots$$

$$2) \text{ الف } = t_n = \frac{(-1)^n}{\sqrt{n+2}}$$

$$t_{14} = \frac{-1^{14}}{\sqrt{14+2}} = \frac{-1}{\sqrt{16}} = -\frac{1}{4}$$

$$ب) t_n = 2n - \left[\frac{n}{4} \right]$$

$$t_{14} = 24 - \left[\frac{14}{4} \right] = 24$$

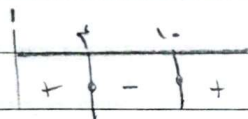
$$3) \text{ الف } = 2n - 10$$

$$2n - 10 < 0 \quad 2n < 10 \quad n < 5 \rightarrow \text{محل}$$

$$ب) n^2 - 14n + 24$$

$$\text{when: } n^2 - 14n + 24 < 0$$

$$(n-4)(n-10) < 0 \quad 4, 7, 9, 10 \rightarrow \text{محل}$$



$$4) \text{ الف } t_n = 2n - 14$$

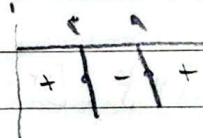
$$2n - 14 < 0$$

$$2n < 14 \quad n < 7$$

$$ب) t_n = n^2 - 14n + 24$$

$$\text{when: } n^2 - 14n + 24 < 0$$

$$(n-4)(n-10) < 0$$



$$2, 4, 6, 7, 9, 10, 11, 12$$

$$\text{محل}$$

$$\begin{aligned} \Delta) \quad & \begin{cases} f_9 = 7 \\ f_9 = 22 \end{cases} \rightarrow \begin{cases} 9a + b = 22 \\ 9a + b = 7 \end{cases} \rightarrow \begin{cases} 12 + b = 7 \\ b = -5 \end{cases} \\ & \begin{cases} 9a + b = 22 \\ b = -5 \end{cases} \rightarrow \begin{cases} 9a - 5 = 22 \\ 9a = 27 \\ a = 3 \end{cases} \end{aligned}$$

$$f_p = ?$$

$$t_n = 3n - 5$$

$$f_p = 9 - 5 = 4$$

$$4) \text{ الف } t_n = n^2 - 9n + 2$$

$$\min \rightarrow \frac{-b}{2a} \rightarrow \frac{9}{2} = 4.5$$

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$$\frac{-\Delta}{2a} = \frac{-(24 - 4 \times 2)}{2 \times 1} = \frac{-20}{2} = -10$$

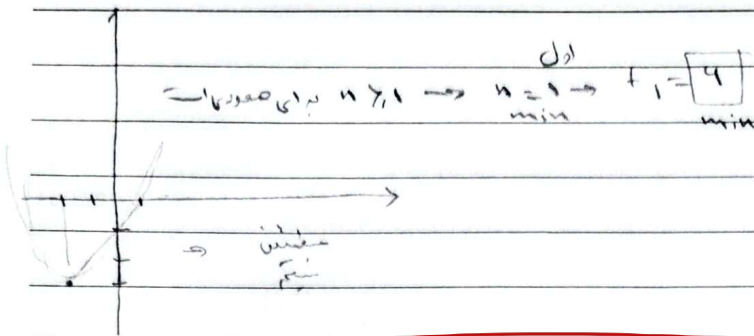
$$4) f_n = n^2 + 4n + 1$$

سریانه قیاری

$$\min \rightarrow \frac{-b}{2a} = \frac{-4}{2} = -2$$

$$n \geq 1$$

$$\frac{-\Delta}{2a} = \frac{-(16-4)}{2} = \frac{-12}{2} = -6$$



$$v) f_n = -4, -7, -9, -7, -4, \dots$$

$$f_1 = ? \rightarrow -7$$

$$1) f_n = -4, -1, 8, 21, \dots$$

$$a = 2$$

$$f_n = 2n^2 - n - 4$$

$$b = -1$$

$$a + b + c = -4$$

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

$$a+2 \leq a+1$$

$$2 \leq a \rightarrow$$

$$10) 1 < f_n < 100$$

$$110$$

$$\frac{1}{2} < n < \frac{100}{2} \rightarrow 50$$

$$11) 1 < a_n < 100$$

$$\frac{1}{2} < n < 10 \rightarrow 19$$

$$12) 1 < a_n < 100$$

$$\frac{1}{10} < n < 100 \rightarrow 100$$

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

$$n(A \cup B) = 33 + 19 - 4 = 48$$

Parsian

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