

الف) $t_n = n^2 - 4n + 2 \Rightarrow t_n = (n-2)^2 - 2 \Rightarrow n-2=0 \Rightarrow n=2$ کمترین مقدار می شود زمانی که $n=2$

$n-2=0 \Rightarrow n=2 \Rightarrow \boxed{t_2 = -2}$

ب) $t_n = (n^2 + 4n + 4) - 4 + 1 \Rightarrow t_n = (n+2)^2 - 3 \Rightarrow (n+2) \gg 0 \Rightarrow$

کمترین مقدار می شود زمانی که $n+2=0 \Rightarrow n=-2$ اما n اولین مقدار قابل قبول طبیعی است $n=1$ $t_1 = (1+2)^2 - 3 = 6 - 3 = 3$ کمترین مقدار می شود در $n=1$ $t_1 = 3$

-4 و -2 و -1 و -3 و -4 $\Rightarrow d=2 \Rightarrow a = \frac{2}{2} = 1$

$a_n = n^2 + bn + c \Rightarrow n^2 + bn + c \xrightarrow{z=1} t_1 = 1 + b + c = -4 \Rightarrow b + c = -5$

$t_2 = (2)^2 + b + c = -2 \Rightarrow 4 + b + c = -2 \Rightarrow b + c = -6$

$-b = 11 - d = 6 \Rightarrow \boxed{b = -6}$

$a_n = n^2 - 4n + 1 \Rightarrow$ فرمول عمومی

$a_{10} = 10^2 - 4 \cdot 10 + 1 = \boxed{51}$

if $b = -4 \Rightarrow \boxed{c = 1}$

-4 و -1 و 1 و 2 و $...$
 $+5$ و $+9$ و $+13$
 $+4$ و $+4 \Rightarrow d=4 \Rightarrow \boxed{a=2}$

$a_n = 2n^2 + bn + c \Rightarrow$

$a_1 = 2 + b + c = -4 \Rightarrow b + c = -6$

$a_2 = 2 \times (2)^2 + b + c = -1 \Rightarrow 8 + b + c = -1 \Rightarrow b + c = -9$
 $-b = 9 - 6 = 3 \Rightarrow \boxed{b = -3}$

فرمول عمومی $\Rightarrow a_n = 2n^2 - 3n - 6 \Rightarrow$

if $b = -1 \Rightarrow \boxed{c = -5} \Rightarrow \boxed{b = -1}$

محدوده زمانی برقرار است که اشتراک آن روشی با صدوا این در یک صورت امکان پذیر است:

$2a+1 > a+2 \Rightarrow 2a-a > 2-1 \Rightarrow \boxed{a > 1} \Rightarrow$ a حود a

محدوده a : $(1, +\infty)$

الف) $n(3) = \left\lfloor \frac{100}{3} \right\rfloor = \boxed{33}$

ب) $n(5) = \left\lfloor \frac{100}{5} \right\rfloor = \boxed{20}$

ج) $n(3) \cap n(5) = n(15) = \left\lfloor \frac{100}{15} \right\rfloor = \boxed{6}$

د) $n(3) \cup n(5) = n(3) + n(5) - n(15) = 33 + 20 - 6 = \boxed{47}$

$$\begin{aligned} t_1 &= 3 \times (1)^2 - 1 = 2 \\ t_2 &= 3 \times (2)^2 - 1 = 11 \\ t_3 &= 3 \times (3)^2 - 1 = 22 \end{aligned}$$

$$\begin{aligned} t_4 &= 3 \times (4)^2 - 1 = 47 \\ t_5 &= 3 \times (5)^2 - 1 = 74 \end{aligned}$$

(الف)

$$\begin{aligned} t_1 &= \frac{(2 \times 1) + 1}{1+2} = \frac{3}{3} \\ t_2 &= \frac{(2 \times 2) + 1}{1+2} = \frac{5}{3} \\ t_3 &= \frac{(2 \times 3)^2 + 1}{3+2} = \frac{37}{5} \end{aligned}$$

$$\begin{aligned} t_4 &= \frac{(2 \times 4) + 1}{4+2} = \frac{9}{6} \\ t_5 &= \frac{(2 \times 5) + 1}{5+2} = \frac{11}{7} \end{aligned}$$

(ب)

$$t_{13} = \frac{(-1)^{13}}{\sqrt{13+2}} = \frac{-1}{\sqrt{15}} = \boxed{\frac{-1}{\sqrt{15}}}$$

(الف)

$$t_{13} = 4 \times 13 - \left[\frac{13}{4} \right] = 52 - [3.25] = 52 - 3 = \boxed{49}$$

(ب)

$$2n - 10 < 0 \Rightarrow 2n < 10 \Rightarrow n < 5 \Rightarrow n = 1, 2, 3, 4 \rightarrow t_1, t_2, t_3, t_4$$

(الف)

$$\begin{aligned} n^2 - 14n + 40 < 0 &\Rightarrow (n-4)(n-10) < 0 \Rightarrow \begin{matrix} \text{فاصله بین} \\ 4 \text{ و } 10 \end{matrix} \Rightarrow n = 5, 6, 7, 8, 9 \\ \Rightarrow n = 5, 6, 7, 8, 9 &\Rightarrow t_5, t_6, t_7, t_8, t_9 \end{aligned}$$

(ب)

$$\begin{aligned} 2n - 14 \leq 0 &\Rightarrow 2n \leq 14 \Rightarrow n \leq 7 \Rightarrow n = 1, 2, \dots, 7 \\ \Rightarrow t_1, t_2, t_3, \dots, t_7 \end{aligned}$$

(الف)

$$\begin{aligned} n^2 - 12n + 27 < 0 &\Rightarrow (n-3)(n-9) < 0 \Rightarrow \begin{matrix} \text{فاصله بین} \\ 3 \text{ و } 9 \end{matrix} \Rightarrow n = 4, 5, 6, 7, 8 \\ n = 4, 5, 6, 7, 8 &\Rightarrow t_4, t_5, \dots, t_8 \end{aligned}$$

$$\begin{aligned} t_4 &= 7 = t_1 + 3d \\ t_8 &= 22 = t_1 + 7d \Rightarrow d = \frac{t_8 - t_4}{8 - 4} = \frac{22 - 7}{4} = \frac{15}{4} = 3.75 \end{aligned}$$

(در اینجا ۲ معادله داریم)

$$\Rightarrow t_1 + (3 \times 3.75) = 7 \Rightarrow t_1 = -2$$

$$\Rightarrow t_3 = t_1 + 2d = -2 + (2 \times 3.75) = \boxed{5} \Rightarrow t_3 = 5$$

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