

$$t_n = 3n^2 - 1$$

$$\rightarrow n_1 = 3 \times 1 - 1 = 2 \quad n_2 = 3 \times 2 \times 2 - 1 = 11 \quad n_3 = 3 \times 3 \times 3 - 1 = 22 \quad (1)$$

$$n_4 = 3 \times 4 \times 4 - 1 = 47 \quad n_5 = 3 \times 5 \times 5 - 1 = 74 \Rightarrow 2, 11, 22, 47, 74, \dots$$

$$b) t_n = \frac{3n+1}{n+5} \Rightarrow n=1 \rightarrow \frac{3+1}{1+5} = \frac{4}{6} \quad n=2 \rightarrow \frac{3 \times 2 + 1}{2+5} = \frac{7}{7} = 1$$

$$n=3 \rightarrow \frac{3 \times 3 + 1}{3+5} = \frac{10}{8} = \frac{5}{4} \quad n=4 \rightarrow \frac{3 \times 4 + 1}{4+5} = \frac{13}{9} \quad n=5 \rightarrow \frac{3 \times 5 + 1}{5+5} = \frac{16}{10} = \frac{8}{5}$$

$$\rightarrow \frac{4}{6}, \frac{7}{7}, 1, \frac{10}{8}, \frac{13}{9}, \dots$$

$$a) t_n = \frac{(-1)^n}{\sqrt{n+10}} \Rightarrow t_{13} = \frac{(-1)^{13}}{\sqrt{13+10}} = \frac{-1}{\sqrt{23}} = -\frac{1}{\sqrt{23}} \quad (2)$$

$$b) t_n = 2n - \left[\frac{n}{2} \right] \Rightarrow t_{13} = 2 \times 13 - \left[\frac{13}{2} \right] = 26 - 6 = 20$$

$$a) t_n = 2n - 10 < 0 \Rightarrow 2n < 10 \Rightarrow n < 5 \Rightarrow 1, 2, 3, 4 \Rightarrow \boxed{F} \quad (3)$$

$$b) t_n = n^2 - 11n + 10 < 0 \Rightarrow n^2 - 11n + 10 < 0 \Rightarrow (n-1)(n-10) < 0 \Rightarrow 1 < n < 10 \Rightarrow 2, 3, 4, 5, 6, 7, 8, 9 \Rightarrow \boxed{D}$$

$$a) t_n = 2n - 14 < 0 \Rightarrow 2n < 14 \Rightarrow n < 7 \Rightarrow n \in \{1, 2, 3, 4, 5, 6\} \quad (4)$$

$$b) t_n = n^2 - 12n + 27 < 0 \Rightarrow n^2 - 12n + 27 < 0 \Rightarrow (n-3)(n-9) < 0 \Rightarrow 3 < n < 9 \Rightarrow 4, 5, 6, 7, 8 \Rightarrow \boxed{D}$$

$$\begin{cases} t_5 \Rightarrow a_1 + 4d = 14 \\ t_9 \Rightarrow a_1 + 8d = 22 \end{cases} \Rightarrow \begin{cases} -4d = -8 \\ a_1 + 8d = 22 \end{cases} \Rightarrow \begin{cases} d = 2 \\ a_1 = 2 \end{cases} \quad (5)$$

$$t_{13} = a_1 + 12d \Rightarrow$$

$$= 2 + 12 \times 2 = \boxed{26}$$

$$d = 2 \Rightarrow a_1 + 9 = 14$$

$$a_1 = 5$$

1 1

ا) $tn = n^2 - 4n + 2 \rightarrow$ طول این $\Rightarrow n = \frac{-b}{2a} = \frac{4}{2} = 2$ ④

$tn = 2^2 - 4 \times 2 + 2 = -2$

ب) $tn = n^2 + 4n + 1 \rightarrow$ طول این $= \frac{-b}{2a} = \frac{-4}{2} = -2 \Rightarrow n = -2$ X

معن آن چون از $n=1$ شروع می شود

$\Rightarrow n=1 \rightarrow 1+4+1 = 6 \text{ min}$

+1 $tn = -1, -4, -9, -16, -25, \dots$ $a = \frac{4}{2} = 2$

$-1 = -1^2, -4 = -2^2, -9 = -3^2, -16 = -4^2, -25 = -5^2, \dots$

$C \Rightarrow$ منفی $\Rightarrow +1$

$tn = an^2 + bn + C \Rightarrow$

$tn = n^2 - 4n + 1 \Rightarrow n^2 + bn + 1 = -1$

$1+b+1 = -1$

$b = -4$

-4 $tn = -4, -1, 4, 9, 16, \dots$ $a = \frac{4}{2} = 2$ ①

$-4 = -2^2, -1 = -1^2, 4 = 2^2, 9 = 3^2, 16 = 4^2, \dots$

$C \Rightarrow$ منفی $\Rightarrow -4$

$tn = an^2 + bn + C$

$tn = 2n^2 + bn - 4 \Rightarrow -4$

$2+b-4 = -4$

$b = -2$

$[a+1, \infty) \cap (-\infty, a+f] \Rightarrow a+1 = a+f$ ②

$a+1 = a+f$

$1 = f$

15 100

$33-1+1 = 33$ $33 = 99$ $n = 33$

$19-1+1 = 20$

• dotnote 100

$n=1 \leftarrow 10n$

$100 \rightarrow n = 100$

$100, 99, \dots, 99$

$100, 99, \dots, 99, 100$

$100 = 10 \times 10$

$100 = 10 \times 10$

مشتبه ما (بر ۱۵)

$$۳۳ + ۲۵ - ۶ = ۴۷$$

(۲) ۵۲

۵۲ بقیه پذیر
۳۳ بقیه پذیر