

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

ب) $t_n = \frac{r_{n+1}}{n+1} \rightarrow t_1 = \frac{r(1)+1}{(1)+1} = \frac{13}{2}, t_2 = \frac{r(2)+1}{(2)+1} = \frac{5}{3}, t_3 = \frac{r(3)+1}{(3)+1} = \frac{1}{4}$ (۲)
 $t_4 = \frac{r(4)+1}{(4)+1} = \frac{9}{5}, t_5 = \frac{r(5)+1}{(5)+1} = \frac{11}{6} \rightarrow \boxed{t_1 = \frac{13}{2}, t_2 = \frac{5}{3}, t_3 = 1, t_4 = \frac{9}{5}, t_5 = \frac{11}{6}}$ ✓

الف) $t_n = \frac{(-1)^n}{\sqrt{n+1}} \rightarrow \frac{(-1)^n}{\sqrt{n+1}} = \frac{-1}{\sqrt{1+1}} \rightarrow \boxed{t_{10} = -\frac{1}{\sqrt{2}}}$ ✓

ب) $t_n = r_n - \left\lfloor \frac{n}{\varepsilon} \right\rfloor \rightarrow t_{10} = r(10) - \left\lfloor \frac{10}{\varepsilon} \right\rfloor = 24 - \left\lfloor \frac{10}{\varepsilon} \right\rfloor = 24 - 2 = 22$
 $\rightarrow \boxed{t_{10} = 22}$ (۲) ✓

الف) $t_n = r_n - 10 \rightarrow r_n - 10 < 0 \rightarrow r_n < 10 \rightarrow n < 10 \rightarrow 1 \leq n \leq 9$
 $\rightarrow \boxed{1 \leq n \leq 9}$ (۲) ✓

ب) $t_n = n^2 - 12n + 10 = (n-6)(n-2) \rightarrow \begin{matrix} 1 & 10 \\ + & - \\ \times & \times \end{matrix} \rightarrow 1 < n < 10$
 $\begin{matrix} 10 & 1 \\ - & + \\ \times & \times \end{matrix} \rightarrow 2 \leq n \leq 9$
 $10 - 12 + 1 = -1 \rightarrow \boxed{-1}$

الف) $t_n = r_n - 14 \rightarrow r_n - 14 \leq 0 \rightarrow r_n \leq 14 \rightarrow n \leq 14 \rightarrow 14 - 1 + 1 = 14$
 $\rightarrow \boxed{14}$ ✓ (۲)

ب) $t_n = n^2 - 12n + 25 = (n-6)(n-5) \rightarrow \begin{matrix} 6 & 5 \\ + & - \\ \times & \times \end{matrix} \rightarrow 5 \leq n \leq 6$
 $\rightarrow 6 - 12 + 25 = 19 \rightarrow \boxed{19}$ ✓

$t_1 = 1 \rightarrow d = \frac{r_1 - 1}{1 - 1} = \frac{14}{0} = 14 \rightarrow t_n = r_n - 14$
 $t_9 = 19$
 $r \times \varepsilon + b = V$
 $b = -d$

$t_r = r(r) - d = 9 - 14 = -5 \rightarrow \boxed{-5}$ ✓ (۲)

الف) $E_n = n^2 - 4n + 2 \xrightarrow{\text{کمترین}} \text{ent} \left| \frac{-b}{2a} \right| \rightarrow \text{ent} \left| \frac{4}{2} \right| = 2$
 $9 - 18 + 2 = -7$: -7 : کمترین

ب) $E_n = n^2 + 4n + 1 \xrightarrow{\text{کمترین}} \text{ent} \left| \frac{-4}{2} \right| = -2 \times \rightarrow \text{ent} \left| \frac{4}{2} \right| = 2$
 $1 + 4(1) + 1 = 6$: 6 : کمترین

$E_n = -4, -7, -1, -4, -9, \dots \rightarrow n^2 + bn + 1 \rightarrow 1 + b + 1 = -4$
 $r = 2a$
 $1 = a$
 $\text{مقدار } b = -4 + b = 1 = c$
 $b = -4$
 $\rightarrow E_n = n^2 - 4n + 1 \rightarrow E_{10} = 10^2 - 4(10) + 1 = 100 - 40 + 1 = 61$
 $E_{10} = 61$: 61 : 61

$E_n = -4, -1, 8, 21, 40, \dots \rightarrow n^2 + bn - v \rightarrow r + b - v = -4$
 $b = -1$
 $E_n = r n^2 - n - v$: 61 : 61

$(-\infty, \alpha + \epsilon] \cap [r\alpha + 1, +\infty) = \emptyset$: $\alpha + \epsilon < r\alpha + 1$
 $r\alpha + 1 = \alpha + \epsilon$
 $\rightarrow \alpha + \epsilon \leq r\alpha + 1 \rightarrow \boxed{+c \leq \alpha} \rightarrow \alpha = [r, +\infty)$
 61 : 61

الف) $1 \leq 2n \leq 100 \rightarrow \frac{1}{2} \leq n \leq 50 \rightarrow 1 \leq n \leq 50 \rightarrow 50 - 1 + 1 = 50$
 ب) $1 \leq 3n \leq 100 \rightarrow \frac{1}{3} \leq n \leq 33 \rightarrow 1 \leq n \leq 33 \rightarrow 33 - 1 + 1 = 33$
 ج) $1 \leq 4n \leq 100 \rightarrow \frac{1}{4} \leq n \leq 25 \rightarrow 1 \leq n \leq 25 \rightarrow 25 - 1 + 1 = 25$
 د) $(الف) + (ب) - (ج) = 50 + 33 - 25 = 58$: 58 : 58

- الف) ۳۳
 ب) ۱۹
 ج) ۴
 د) ۴۴

در صورتی که عدد ۱۰۰ باشد