

11, 20

کاره سیکه - دسم دقت B

1)

$$a_n = t_n = 3n^2 - 1 \begin{cases} t_1 = 3 \times 1 - 1 = 2 \\ t_2 = 3 \times 4 - 1 = 11 \\ t_3 = 3 \times 9 - 1 = 26 \\ t_4 = 3 \times 16 - 1 = 47 \\ t_5 = 3 \times 25 - 1 = 74 \end{cases}$$

2, 11, 26, 47, 74, ...

1

$$b) t_n = \frac{3n+1}{n+2} \begin{cases} t_1 = \frac{3 \times 1 + 1}{1 + 2} = \frac{4}{3} \\ t_2 = \frac{3 \times 2 + 1}{2 + 2} = \frac{7}{4} \\ t_3 = \frac{3 \times 3 + 1}{3 + 2} = \frac{10}{5} = 2 \end{cases}$$

$$t_4 = \frac{3 \times 4 + 1}{4 + 2} = \frac{13}{6}$$

$$t_5 = \frac{3 \times 5 + 1}{5 + 2} = \frac{16}{7}$$

$\frac{4}{3}, \frac{7}{4}, 2, \frac{13}{6}, \frac{16}{7}, \dots$

1

2)

$$a_n = t_n = \frac{(-1)^n}{\sqrt{n+2}} = \frac{(-1)^n}{\sqrt{1+2n}} = \left| \frac{-1}{\sqrt{1+2n}} \right|$$

$$b) = 3 \times 10 - \left[\frac{10}{2} \right] = 25$$

3)

$$a_n = t_n = 2n - 1$$

$$2n - 1 = 0 \rightarrow n = \frac{1}{2}$$

$$-\infty < \frac{1}{2} < +\infty \rightarrow n < \infty$$

$$b) = t_n = n^2 - 1 \rightarrow (n-1)(n+1)$$

$$(n-1)(n+1)$$

$$-\infty < \frac{1}{2} < +\infty \rightarrow (1, \infty)$$

1

4)

$$a) t_n = 2n - 1 \rightarrow 2n - 1 = 0 \rightarrow n = \frac{1}{2}$$

$$-\infty < \frac{1}{2} < +\infty$$

$$n \leq 1 \rightarrow 1, 2, 3, 4, 5, 6, 7, 8, 9$$

1

$$b) t_n = n^2 - 1 \rightarrow (n-1)(n+1)$$

$$-\infty < \frac{1}{2} < +\infty$$

$$\rightarrow [2, 9] \rightarrow 2, 3, 4, 5, 6, 7, 8, 9$$

1

5)

?

6)

الف) $f_n = n^2 - 4n + 2 \rightarrow a > 0, b < 0, c > 0$
 $\min$

$$\begin{cases} x_{\min} = \frac{-b}{2a} = \frac{4}{2} = 2 \\ y_{\min} = (2)^2 - 4(2) + 2 = -2 \end{cases}$$

نصف اعداد طبیعی است و نمی تواند منفی باشد

ب) $f_n = n^2 + 4n + 1 \rightarrow a > 0, b > 0, c > 0$
 $\min$
 $t_1 = 4, t_2 = 14, t_3 = 14$
 $t_1 = 4 \rightarrow t_{\min} + t_1 < 4$

$$\begin{cases} x_{\min} = \frac{-b}{2a} = \frac{-4}{2} = -2 \\ y_{\min} = (-2)^2 + 4(-2) + 1 = -3 \end{cases}$$

ج) $f_n = -n^2 - 4n - 4$

مقادیر زوج
 $\downarrow$
 $a n^2 + b n + c = f_n$
 $\rightarrow 4n = 4 \rightarrow a = 1$

$$\begin{cases} t_1 = 1 \times 1 + b \times 1 + c \rightarrow 1 + b + c = -4 \rightarrow b + c = -5 \\ t_2 = 1 \times 4 + 2b + c \rightarrow 4 + 2b + c = -4 \rightarrow 2b + c = -8 \end{cases}$$

$a = 1, b = -6, c = 1 \rightarrow n^2 - 6n + 1 = f_n$
 $-9 + c = -8 \rightarrow c = -1$
 $b = -6$

$(10)^2 - 6(10) + 1 = f_{10} = 51$

8) $f_n = -n^2 - 4n - 1$

مقادیر زوج
 $\downarrow$
 $a n^2 + b n + c = f_n$
 $\rightarrow 4n = 4 \rightarrow a = 2$

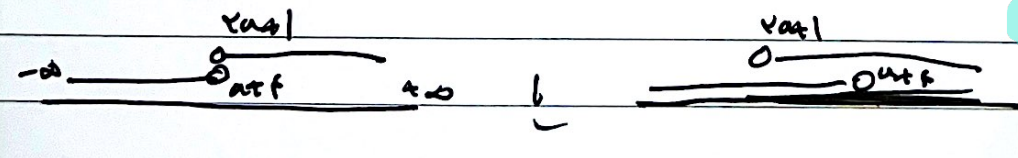
$$\begin{cases} t_1 = 2(1)^2 + b + c \Rightarrow b + c = -1 \\ t_2 = 2 + 2b + c \Rightarrow 2b + c = -9 \end{cases}$$

$a = 2, b = -1, c = -1 \rightarrow 2n^2 - n - 1 = f_n$
 $c = -1, -1 + c = -1 \rightarrow c = -1$
 $b = -1$

استاد باید به عنوان یک سوال باشد

9) $\rightarrow (-\infty, a + \epsilon] \cap [a + 1, +\infty) \rightarrow$ متعلق

$a + 1 \geq a + \epsilon$
 $a \geq 1$



$a \geq 1$

10) الف) $\frac{99-3}{2} + 1 = 48$
 ب) $99 + 90 - 2 = 187$

ب) $\frac{100-0}{2} + 1 = 50$

ج) $\frac{20+10}{10} + 1 = 3$