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1- الف)
$$3n^2 - 1 \rightarrow n=1 \rightarrow 3 \times 1 - 1 = 2$$

$$\left. \begin{array}{l} n=2 \rightarrow 12 - 1 = 11 \\ n=3 \rightarrow 27 - 1 = 26 \\ n=4 \rightarrow 48 - 1 = 47 \\ n=5 \rightarrow 75 - 1 = 74 \end{array} \right\} \rightarrow 2, 11, 26, 47, 74$$

ب)
$$\frac{3n+1}{n+5} \rightarrow n=1 \rightarrow \frac{4}{6} = \frac{2}{3}$$

$$\left. \begin{array}{l} n=2 \rightarrow \frac{7}{7} = 1 \\ n=3 \rightarrow \frac{10}{8} = \frac{5}{4} \\ n=4 \rightarrow \frac{13}{9} \\ n=5 \rightarrow \frac{16}{10} = \frac{8}{5} \end{array} \right\} \rightarrow \frac{2}{3}, \frac{5}{4}, 1, \frac{9}{8}, \frac{11}{9}$$

2- الف)
$$\frac{(-1)^n}{\sqrt{n+3}} = \frac{(-1)^{12}}{\sqrt{13+3}} = \frac{-1}{\sqrt{16}} = -\frac{1}{4}$$

ب)
$$2n - \left[\frac{n}{2}\right] = 2 \times 12 - \left[\frac{12}{2}\right] = 24 - 6 = 18$$

3- الف)
$$2n-10 \rightarrow n=1 \rightarrow t_n = -8$$

$$\left. \begin{array}{l} n=5 \rightarrow t_n = 0 \end{array} \right\} \rightarrow A = \{1, 2, 3, 4\} = U = [1, 4]$$

ب)
$$n^2 - 12n + 35 = (n-5)(n-7) \rightarrow \begin{array}{c} 5 \quad 7 \\ | \quad | \\ + \quad - \quad + \end{array} \rightarrow n = (5, 7)$$

4- الف)
$$2n-19 \rightarrow n=1 \rightarrow t_n = -17$$

$$\left. \begin{array}{l} n=10 \rightarrow t_n = 1 \end{array} \right\} \rightarrow [1, 10] = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$$

ب)
$$n^2 - 12n + 27 = (n-3)(n-9) \rightarrow \begin{array}{c} 3 \quad 9 \\ | \quad | \\ + \quad - \quad + \end{array} \rightarrow n = [3, 9]$$

ج)
$$t_2 = 7, t_9 = 22 \rightarrow t_3 = 5$$

$$5a + b = 7, 9a + b = 22 \rightarrow 4a = 22 - 7 = 15 \rightarrow a = 3$$

$$\rightarrow b = -8 \rightarrow 3n - 8 \rightarrow 3 \times 3 - 8 = 1$$

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$$n^2 - 4n + 2 \xrightarrow{n=1} 1 - 4 + 2 = -1$$

4- الف)

$$\begin{aligned} n=2 & \rightarrow 4 - 8 + 2 = -2 \\ n=3 & \rightarrow 9 - 12 + 2 = -1 \\ n=4 & \rightarrow 16 - 16 + 2 = -2 \end{aligned}$$

نیز می شود

$$n^2 + 5n + 1 \xrightarrow{n=1} 1 + 5 + 1 = 7$$

ب)

$$n=1 \rightarrow a + b + c = -4 \rightarrow a \rightarrow 3a + b = -4 - (-4) = 0$$

7

$$n=2 \rightarrow 4a + 2b + c = -1 \quad 5a + b = -1 - (-4) = 3$$

$$n=3 \rightarrow 9a + 3b + c = 1 \quad 2a = 1 - (-1) = 2 \rightarrow a = 1$$

$$b = -4, \quad c = +1$$

$$\rightarrow n^2 + 4b + 1$$

$$-4, -1, 1, 2$$

1

$$n=1 \rightarrow a + b + c = -4 \rightarrow 3a + b = 0$$

$$n=2 \rightarrow 4a + 2b + c = -1 \quad 5a + b = 4$$

$$n=3 \rightarrow 9a + 3b + c = 1 \quad 2a = 1 \rightarrow a = \frac{1}{2}$$

$$b = -1, \quad c = -\frac{1}{2}$$

$$\rightarrow 2n^2 - n - \frac{1}{2}$$

$$(-\infty, a + \varepsilon] \cup [2a + 1, +\infty) \quad \text{اگر } a + \varepsilon < 2a + 1$$

9

$$\text{برابر باشد} \rightarrow 2a + 1 = a + \varepsilon \rightarrow a = 1$$

$$\rightarrow a = 1$$

$$\text{SARTI} \rightarrow a > 1 \rightarrow a = [1, +\infty)$$

اگر اعداد متناهی باشد

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$$\frac{49 - 13}{13} + 1 = 13$$

(الف)

$$\frac{100 - 5}{5} + 1 = 20$$

(ب)

$$\frac{90 - 15}{15} + 1 = 7$$

(ج) باقی ۵۶۳ بقیہ نہیں ہے

$$33 + 10 - 6 = 37$$

(د) نیچے دی گئی باتیں اشتراکات ہیں

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