

زبان قتی

کروه (هم‌بندی) (متر)

1102

① $1, 5, 12, 22, \dots$ $tn = \frac{1}{2}n^2 + bn + c \rightarrow c=0$ -1

$\xrightarrow{+1} \xrightarrow{+3} \xrightarrow{+5} \xrightarrow{+7}$ $tn = \frac{1}{2}n^2 + bn \rightarrow n=2 \rightarrow 4+2b=5$

$b=1/2 \rightarrow tn = \frac{1}{2}n^2 - \frac{1}{2}n$

$t_{10} = \frac{1}{2}(10)^2 - \frac{1}{2}(10) = 150 - 5 = 145$

$0, 1, 3, 6, \dots$ $tn = \frac{n(n-1)}{2} = 55$ -2

$n(n-1) = 110 \rightarrow n=11$

$5, 12, 21, \dots$ $tn = 1n - 3 \rightarrow t_{11} = 11 - 3 = 8$ -3

$\xrightarrow{+7} \xrightarrow{+7}$

$5, 9, 13, \dots$ $tn = 4n + 1 \rightarrow t_{11} = 44 + 1 = 45$

$45 + 1 = 46 \rightarrow 45 + 1 = 46$

$an = -1, \frac{1}{2}, -\frac{1}{3}, \frac{1}{4}, \dots$ $\frac{1}{n} - (-1) = \frac{1}{n} + 1$ -4

$\rightarrow$ $\frac{1}{n} + 1$

$b_n = -2V - 21 = -41$ $a_k = -5k + 22$ $-5k + 22 = -41$ -5

$5k = 63 \rightarrow k=13$

$t_{10} - t_9 = 12 \rightarrow 10a + b - (9a + b) = 12 \rightarrow a = 12$ -6

$t_9 - t_1 = 9a + b - (a + b) = 8a = 20 \rightarrow a = 2.5$

$$a_n = a_{n+b} \quad \begin{cases} |a+b| = \sqrt{2} \\ |a+b| = 1 \end{cases} \quad \begin{matrix} a_1 = a+b = \sqrt{2} \\ a_2 = |a+b| = 1 \end{matrix} \quad -\checkmark$$

$$|a| = 1 \rightarrow a = \sqrt{2}, b = -1$$

$$b_n = 3, 11, 19, 27, \dots \rightarrow b_n = 8n - 5$$

$\xrightarrow{+8} \quad \xrightarrow{+8} \quad \xrightarrow{+8}$

$$t_n = \frac{1}{1}, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \dots \rightarrow t_n = \frac{1}{n^2} \rightarrow \frac{1}{n^2} < \frac{1}{2} \quad -1$$

$\xrightarrow{+1} \quad \xrightarrow{+1} \quad \xrightarrow{+1}$

$$8n - 5 < 9n + 1 \rightarrow 8n < 13 \rightarrow n < \frac{13}{8} \approx 1.625$$

(حل به روش دیگر)

$$t_n = 9, 1, 9, 9, 0, \dots \rightarrow t_n = -\frac{1}{n} + bn + c \rightarrow t_n = -\frac{1}{n} + bn \quad -9$$

$\xrightarrow{+9} \quad \xrightarrow{+1} \quad \xrightarrow{-9} \quad \xrightarrow{-9}$

$\downarrow c=0$

$$t_1 = -\frac{1}{1} + 1b = 9 \rightarrow 1 = 2b \Rightarrow b = \frac{1}{2}$$

$$t_n = -\frac{1}{n} + \frac{1}{2}n \rightarrow A + Bn \Rightarrow 1(-\frac{1}{n}) + \frac{1}{2}(1) = \frac{1}{2} \quad (9 = \frac{1}{2})$$

$$t_n = -\frac{1}{n}, -\frac{1}{n}, 0, \dots \Rightarrow t_n = \frac{1}{n} + bn + c \rightarrow (c = -9) \Rightarrow b = -1 \quad -10$$

$\xrightarrow{+1} \quad \xrightarrow{+1}$

$$t_n = \frac{1}{n} - n - 9 = \frac{1}{n} - n - 9$$

$$|a+b| = \sqrt{2}$$

$$|a+b| = 1$$

$$|a| = 0 \rightarrow a = 0, b = 1$$

$$n^2 - 9n - 14 = 0 \rightarrow (n+2)(n-14) = 0$$

$$n = 14$$

$$n = 9, -2$$

$\checkmark$