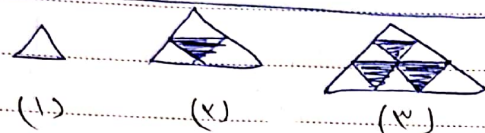


(1) (2) (3) (4)

1 4 9 16 $\rightarrow t_n = n^2 + \frac{n(n-1)}{2}$

$$t_{10} = n^2 + \frac{n(n-1)}{2} = 100 + \frac{100(99)}{2}$$

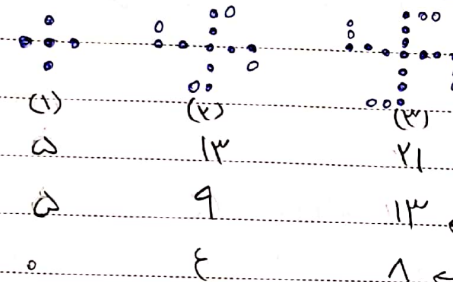
5050



(1) (2) (3)
0 1 2
1 3 6
1 3 6

$$t_n = \frac{n(n+1)}{2}$$

$t_n - n = 55$
 $\frac{n(n+1)}{2} - n = 55$



(1) (2) (3) (4)
0 1 2 3
1 3 5 7
0 1 2 3

$t_{11} = \frac{11(11-1)}{2} = 55$
 $a_n = \frac{11(11)}{2} + 1 = 66$
 $d = 55 + 55 = 110$
 $d = t_n + n$
 $t_n = a_n - n = 11n - 1$

$$a_n = \frac{(-1)^n}{n}$$

کوچکتر $\rightarrow -1$
بزرگتر $\rightarrow \frac{1}{2}$

$-1, \frac{1}{2}, -\frac{1}{3}, \frac{1}{4}, \dots$
 $\uparrow \uparrow \uparrow \uparrow$
 $n=1 \quad n=2 \quad n=3 \quad n=4$

اختلاف $\rightarrow \frac{1}{2} - (-1) = \frac{1}{2} + 1 = \frac{3}{2}$

$b_n = (-3)^n - 7n \rightarrow b_3 = (-3)^3 - 7(3) = -27 - 21 = -48$

$a_n = -a_{n+2}$

$-a_n + 22 = -48$

$\frac{-a_n}{-a} = \frac{-48}{-a} \rightarrow n = k = 18$

Subject :

Year . Month . Date . ()

$$t_{10} - t_0 = 12 \rightarrow 3d = 12 \rightarrow d = 4$$

$$t_4 - t_1 = 9$$

$$d = \frac{t_4 - t_1}{4 - 1} \rightarrow 4 = \frac{t_4 - t_1}{3} \rightarrow t_4 - t_1 = 12$$

$$\begin{cases} a_1 = 1 \\ a_2 = 10 \end{cases} \quad \begin{aligned} a_1 &= b_1 \rightarrow a_1 = \xi(1) - 1 = 3 = b_1 \\ a_2 &= b_2 \rightarrow a_2 = \xi(2) - 1 = 11 = b_2 \end{aligned}$$

$$3d = 12 \rightarrow d = 4$$

$$a_n = \xi n - 1$$

$$3, 11, \dots$$

$$\xrightarrow{+8}$$

$$b_n = 4n - 3$$

$$\frac{1}{a}, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \dots \quad t_n = \frac{\xi n - 1}{4n + 3}$$

$$\frac{\xi n - 1}{4n + 3} < \frac{3}{4} \rightarrow 3(4n + 3) > 4(\xi n - 1) \rightarrow 12n + 9 > 4\xi n - 4$$

$$13 > 4\xi n - 4 \rightarrow 17 > 4\xi n \rightarrow \xi n < \frac{17}{4}$$

$$4, 9, 16, 25, \dots$$

$$t_n = An^2 + Bn$$

$$3A + 2B = 9$$

$$t_1 = A + B = 4$$

$$\begin{cases} t_1 = A + B = 4 \rightarrow B = 4 - A \\ t_2 = 4A + 2B = 9 \end{cases}$$

$$4A + 2(4 - A) = 9 \rightarrow 4A + 8 - 2A = 9 \rightarrow 2A = 1 \rightarrow A = \frac{1}{2}$$

$$A = -\frac{3}{4}$$

$$3(-\frac{3}{4}) + 2(\frac{15}{4}) = -\frac{9}{4} + \frac{30}{4} = \frac{21}{4} = 5.25$$

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$$B = \frac{15}{4}$$

$$t_n = -9, -8, -7, \dots \rightarrow t_n = an^2 + bn + c \rightarrow t_n = n^2 - n - 9$$

$$\begin{cases} a_1 = 31 \\ a_2 = 81 \end{cases}$$

$$+2 \quad +8$$

$$+2 \rightarrow 2a = 2 \rightarrow a = 1$$

$$t_1 = 1 + b + c = -9$$

$$t_2 = 4 - 2b - c = 8$$

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

$$a_n = 2n + 1$$

$$a_1 = 3 \quad t_1 = 3$$

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