

Subject:

پاسخ دلیف شماره ۱۰

مختار سلور

سؤال ۱

111, 1234, 123456789, ...

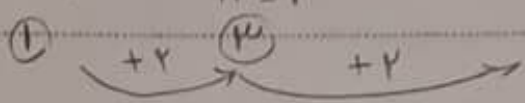
n=1

n=2

n=10

$$t_n = 2n - 1$$

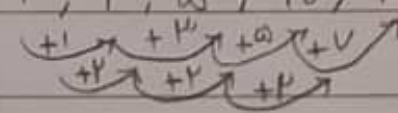
تعداد اعداد در هر مرحله



اعداد (1 تا 10)

تعداد اعداد در مرحله n / $2 \times 9 - 1 = 17 = 18 - 1$ / $n = 9$ / $2 \times 9 - 1 = 17$

اولین عدد در مرحله n / $1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, \dots$ / $Pa = 2 \Rightarrow a = 1$



$$Pa + b = 1 \Rightarrow a = 1 \Rightarrow b = -2$$

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$$a + b + c = 1 \Rightarrow 1 - 2 + c = 1 \Rightarrow c = 2$$

$$t_n = n^2 - 2n + 2 \Rightarrow C = 2$$

$$b = \frac{a+c}{2} \Rightarrow b = \frac{1+2}{2} = 1.5$$

$$a_n \in \mathbb{N} \Rightarrow Pa_1 = a_n$$

$$\Rightarrow a_1 = 1 \Rightarrow a_{10} = 10 \Rightarrow \{a_k = k \mid a_{10} = 10\}$$

$$a_{10} = 10 \Rightarrow a_{11} = 11 \Rightarrow a_{12} = 12 \Rightarrow a_{13} = 13 \Rightarrow a_{14} = 14 \Rightarrow a_{15} = 15 \Rightarrow a_{16} = 16 \Rightarrow a_{17} = 17 \Rightarrow a_{18} = 18 \Rightarrow a_{19} = 19 \Rightarrow a_{20} = 20$$

$$a_{20} = 20 \Rightarrow a_{21} = 21 \Rightarrow a_{22} = 22 \Rightarrow a_{23} = 23 \Rightarrow a_{24} = 24 \Rightarrow a_{25} = 25 \Rightarrow a_{26} = 26 \Rightarrow a_{27} = 27 \Rightarrow a_{28} = 28 \Rightarrow a_{29} = 29 \Rightarrow a_{30} = 30$$

$$P^k = n = 3k \Rightarrow n = 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, \dots$$

$$-2k + \varepsilon \Rightarrow n = 3k + 1 \Rightarrow n = 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, \dots$$

$$\Rightarrow 10 + 3a = 19 \Rightarrow a = 3$$

$$\Rightarrow 1 - 2 + 1 - 2 + 1 - 2 + 1 - 2 = -2$$

$$t_a = 14 \Rightarrow 2a + ab + c = 14 \Rightarrow a + ab + c = 14$$

$$t_v = 14, 2 \Rightarrow 2a + vb + c = 14, 2 \Rightarrow vb + c = 14$$

$$a \rightarrow \frac{1}{\omega} \times -14 = -\frac{1}{\omega} = -0.12 \Rightarrow t_n = -0.12n^2 + bn + c$$

$$\begin{cases} ab+c=19 \\ vb+c=17 \end{cases} \xrightarrow{x-1} \begin{cases} -ab-c=-19 \\ vb+c=17 \end{cases} \Rightarrow vb=1 \Rightarrow b=1 \Rightarrow c=-1$$

ادارة سؤال (15)

$$t_{10} = (10 \times 10 \times -17) + (10 \times 1) - 1 = 17 \quad \Leftarrow a = -17$$

$$t_1 = -17 + 1 - 1 = 17$$

$$\text{Date: } \frac{t_{10}}{t_1} = \frac{17}{17} = 1$$

$$a_1 = 10a + b = 0 \Rightarrow b = -10a \Rightarrow a_n = \frac{an - 10a}{a(n-10)} \quad (\text{سؤال 10})$$

$$t_1 = a_1 \Rightarrow a(1-10) = -10a$$

$$t_n = t_1 + d(n-1)$$

$$t_n = a_n \Rightarrow a(n-10) = -10a$$

$$t_n - t_k = kd \Rightarrow -10a - (-10a) = kd$$

$$a_{10} = a(10-10) \Rightarrow a = 0a \Rightarrow \frac{a_{10}}{a} = 0 \quad \Leftarrow d = \frac{a}{2} \Rightarrow 0a = kd$$

$$4(a+d)^2 = 5(a+rd) + 13(a+d)a \Rightarrow 4a^2 + 4d^2 + 8ad = 5a + 5rd + 13a^2 + 13ad$$

$$\Rightarrow 9a^2 + 10ad + 4d^2 = 0 \Rightarrow 9a^2 - 4d^2 + 10ad = 0$$

$$(3a-2d)(a+2d) = 0 \Rightarrow \textcircled{1} a = \frac{2d}{3} \Rightarrow \frac{a}{d} = \frac{2}{3} \quad \textcircled{2} a = -2d \Rightarrow \frac{a}{d} = -2$$

$$\Rightarrow \textcircled{1} \frac{\frac{2d}{3} + 2d}{d} = \frac{8}{3}$$

$$\Rightarrow \textcircled{2} \frac{-2d + 2d}{d} = 0$$

$$\frac{a}{r} = \frac{a}{r}$$

$$b = a + d$$

$$c = a + rd$$

(سؤال 17)

$$\frac{a}{r} = \frac{a}{r}$$

$$b$$

$$\frac{(a+rd)}{r}$$

$$\frac{a}{r}$$

$$\Rightarrow -3a = d$$

$$\frac{a}{r} = r = \frac{a}{a+d}$$

$$r$$

$$= \frac{a}{a+d}$$

$$= \frac{a}{a-3a}$$

$$= -\frac{1}{2}$$

$$= -\frac{1}{2}$$

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$$b = ar, c = ar^2$$

$$r(2a) = c + 13b$$

$$2ar = ar^2 + 13(ar)$$

(سؤال 18)

$$2 = r^2 + 13r \Rightarrow r^2 + 13r - 2 = 0 \Rightarrow (r+14)(r-1) = 0 \Rightarrow r = -1$$

$$\frac{T_9}{T_4} = r^5 = (-1)^5 = -1$$

$$\frac{a_1}{(a_1)^n} + \frac{a_1}{(a_1)^r} = 2 \Rightarrow \frac{a_1 q^0}{a_1^n q^{1n}} + \frac{a_1 q}{a_1^r} = 2 \Rightarrow \frac{q^r + a_1 q}{a_1^r} = 2 \quad (\text{سؤال 19})$$

$$\Rightarrow 1a^r - q^r - a_1 q = 0 \Rightarrow (1a + q)(a - q) = 0 \Rightarrow q = -1a$$

$$\Rightarrow \frac{a^r}{a_1} = -1 \Rightarrow \frac{a^r}{a_1} = -1$$

$$\Rightarrow \frac{a^r}{a_1} = -1$$

$$a_1 q^r = 17$$

$$a_1 q^r = \sqrt{a_1 q^{17}} \Rightarrow a_1 q^r = q \sqrt{a_1 q}$$

(سؤال 20)

$$\frac{a_1 q^r}{a_1} = q^r = 17 \Rightarrow q = 17 \Rightarrow a = \frac{1}{17} \Rightarrow a_1 = \frac{1}{17} \Rightarrow \frac{1}{r} - \frac{1}{c} = \left(\frac{1}{4}\right)$$

$$\frac{a_1 q^r}{a_1} = q^r = 17 \Rightarrow q = 17 \Rightarrow a = \frac{1}{17} \Rightarrow a_1 = \frac{1}{17} \Rightarrow \frac{1}{r} - \frac{1}{c} = \left(\frac{1}{4}\right)$$

$$\frac{a_1 q^r}{a_1} = q^r = 17 \Rightarrow q = 17 \Rightarrow a = \frac{1}{17} \Rightarrow a_1 = \frac{1}{17} \Rightarrow \frac{1}{r} - \frac{1}{c} = \left(\frac{1}{4}\right)$$