

۱۵. حتما پاسخ نامه! مطالعه کن!

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| سایندادی | تکلیف ۱۳ | گروه دهم دختر B |
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-۱

$$a_1 = 40, a_8 = 91 \rightarrow a_8 = 40 + 7d = 91 \rightarrow 7d = 51 \rightarrow d = 7$$

$$401 = 7n + 3 \rightarrow 175 = 7n \rightarrow n = \frac{175}{7} = 25$$

۴۰۱ جمله ۲۵ام این دنباله است.

-۲

$$100 \leq 7n + 3 \leq 999 \Rightarrow 100 \leq 7n + 3 \rightarrow 97 \leq 7n \rightarrow n \geq 14$$

$$\rightarrow 7n + 3 \leq 999 \rightarrow 7n \leq 996 \rightarrow n \leq 142$$

$(142 - 14) + 1 = 129$  عدد سرهمی وجود دارد.

-۳

$$a_{n+1} + a_{n+2} + a_{n+3} = -9n + 12$$

$$a_{11} + a_1 = ?$$

-۴

$$a_3 = 4^3 - 1$$

$$a_1 = 4^1 + 1$$

$$a_{13} = 4^{13} - 3$$

$$a_3 + a_1 + a_{13} = ?$$

-۵

$$a_{12} - a_{10} = 2d = 5 \rightarrow d = 2.5$$

$$a_{12} + a_{10} = 2a + 20d = 2a \rightarrow 2a = 50 + 2a \rightarrow -2a = 2a \rightarrow a = -12.5$$

$$a_{21} = -12.5 + (20 \times 2.5) = 50 - 12.5 = 37.5$$

$$\frac{a_4 + a_5 + a_6 + a_7 + a_{10}}{a_1 + a_2 + a_3 + a_8 + a_9} = 10 \rightarrow \frac{5a + 10d}{5a + 10d} = 10 \rightarrow 5a + 10d = \frac{5}{10}a + \frac{10}{10}d$$

$$5a - \frac{5}{10}a = \frac{10}{10}d - 10d \rightarrow \frac{10-5}{10}a = \frac{10-100}{10}d \rightarrow \frac{5}{10}a = \frac{-90}{10}d$$

$$a = \frac{-90}{10}d = -9d \quad a_7 = -9d + 6d \rightarrow a_7 = -3d$$

$$t_n = t_{n-1} + 10$$

$$\frac{t_9 - t_5}{t_7} = 9 \rightarrow \frac{(t_9 - t_5)(t_7 + 10)}{t_7} = 9 \rightarrow \frac{(t_9 + 10 - t_5 - 10)(t_7 + 10 + t_7 + 10)}{t_7 + 10}$$

$$\frac{t_8 \cdot (t_1 + 10)}{t_8 + 10} = t_8 \cdot \frac{t_1 + 10}{1 + \frac{10}{t_8}}$$

$$\frac{1 + \sqrt{10} - 1(1 - 4\sqrt{10})}{10} = \frac{1 + 14\sqrt{10} - 1 + \sqrt{10}}{10} = \frac{15\sqrt{10}}{10}$$

$$d = \sqrt{10}$$

$$\frac{100 + 100}{100} = 10 \rightarrow \frac{200 - 100}{100} = 10 \rightarrow 200 - 100 = 100 \rightarrow 200 = 100 + 100$$

$$a + 14d + a + 10d = 4a + 24d$$

$$n=1 \rightarrow a_1 + a_2 + a_3 = 4 \quad \text{نمونه}$$

$$n=2 \rightarrow a_1 + a_2 + a_3 = 0 \rightarrow a_3 - a_2 = -4$$

$$a_1 + a_3 - a_1 - 2d = -4 \rightarrow 2d = -4 \rightarrow d = -2$$

$$a_1 + a_2 + a_3 = 4 \rightarrow 3a_1 + d + 2d = 4 \rightarrow 3a_1 = 11 \rightarrow$$

$$a_1 = 4$$

$$a_{11} + a_1 = a_1 + a_1 + 10d + 10d$$

$$2a_1 + 20d = 2(4) + 20(-2) = -32$$

$$a_2 + a_{12} = a_1 + a_1$$

$$r^n - 1 + r^{n-1} - r = r(r^{n+1})$$

$$r^n - r = r(r \times r^n) - r^n$$

$$r^n - r \times r^n - 2 = 0 \rightarrow r^n = 2$$

$$2^n - 2 \times 2 - 2 = 0 \rightarrow 2^n = 6 \rightarrow n = 2$$

$$b = -1 \quad \text{نقشه}$$

$$\text{حاصل} \rightarrow \frac{r}{r-1} / \frac{r^{n+1}}{r} / \frac{r(r)}{r-1}$$

$$3 + 1 + 13 = 17$$

$$t_9^2 - t_5^2 = (t_9 - t_5)(t_9 + t_5)$$

$$t_9 + t_5 = t_1 + t_9 = 2t_1 \rightarrow \frac{2t_1(t_9 - t_5)}{2t_1} = t_1(t_9 - t_5)$$

$$t_9 - t_5 = t_1 + 8d - t_1 - 4d = 4d \rightarrow 4d$$

$$n=2 \rightarrow t_2 = t_1 + d \rightarrow t_1 + 8d = t_1 + d \rightarrow d = 7$$

$$4d = 4(7) = 28$$

سوال ۶

مجموع ۵ جمله اول

$$\overbrace{a_1 + a_2 + a_3 + a_4 + a_5}^{2a_3} = 5a_3$$

مجموع ۵ جمله آخر

$$\overbrace{a_4 + a_5 + a_1 + a_2 + a_3}^{2a_3} = 5a_3$$

$$3 \times 5a_3 = 5a_1 \rightarrow 3a_3 = a_1 \quad \frac{a_2}{a_1} = \frac{3a_1}{a_1} = 3$$

$$3(a_1 + 2d) = a_1 + 2d \rightarrow 2a_1 = d$$

سوال ۹

$a_{n-3}$  واسطه‌ای حسابی درج ششم است پس  $32$  صمدی  $a_{n-1}$  است!

$$a_{n-1} = \cancel{a_1} + (n-2)d = 32 \rightarrow (n-2)d = 32 \rightarrow (n-1)d = 35$$

$$a_{n+1} = \cancel{a_1} + nd = 11 \rightarrow nd = 9$$

واسطه‌ای  $n$  ام صمدی  $n+1$  است!

$$2nd - d = 15 \xrightarrow{nd=9} \begin{cases} d=3 \\ n=3 \end{cases}$$

$$a_n + a_{n+2} = a_2 + a_{17} \rightarrow n + n + 2 = 2 + 17$$

سوال ۱۰

$$2n + 2 = 2 \rightarrow n = 1$$

$$a_1 = 3a_2 \rightarrow a_1 + 2d = 3(a_1 + 2d)$$

$$3a_1 + 4d = a_1 + 2d \rightarrow 2a_1 = -2d \rightarrow a_1 = -d$$

$$a_{t+1} = 0 \rightarrow a_1 + (t-1)d = 0 \rightarrow td = 2d$$

$$t = 2$$

صمدی ۱۲ ضربات