

تکلیف ۱۳٪

۲.

نام خانوادگی: ...

$$a_1 = 40$$

$$a_4 = 91$$

برای $a_n = 208$ ؟ $\rightarrow$ برابر ۲۰۸ است

(۱)

$$\begin{cases} a_1 = 40 \\ a_1 + 3d = 91 \end{cases}$$

$$\Rightarrow 3d = 51 \Rightarrow d = 17$$

$$a_n = 40 + (n-1)17$$

$$40 + (n-1)17 = 208 \Rightarrow (n-1) = \frac{168}{17}$$

$$n-1 = 9.88 \Rightarrow n = 10.88$$

✓

$$100 \leq 17n + 40 < 1000 \Rightarrow \frac{960}{17} \leq n < \frac{960}{17} + 1 = 56.47$$

$$n \leq 56$$

✓

۱۲۹

$$a_{n+1} + a_{n+2} + a_{n+3} = -9n + 14$$

$$n = 4 \Rightarrow a_5 + a_6 + a_7 = -36 \Rightarrow 4(a_1 + 3d) = -36 \Rightarrow a_1 = -12$$

$$a_{14} + a_{15} = ? \quad n = 14 \Rightarrow a_{14} + a_{15} + a_{16} = -126 \Rightarrow 2(a_1 + 14d) = -126 \Rightarrow a_{14} = -29$$

$$a_{14} + a_{15} = -29 - 12 = -41$$

✓

$$a_1 + a_2 + a_3 + \dots + a_n = 1 - 1 + 1 - 1 + \dots + (-1)^{n+1} = \begin{cases} 1 & n \text{ odd} \\ 0 & n \text{ even} \end{cases}$$

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

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✓

$$a_n + a_{n+1} = a_n + a_{n+1}$$

$$(-1)^{n+1} + (-1)^{n+2} = 0$$

$$(-1)^{n+1} = 1 \Rightarrow n = 2$$

$$a_{14} - a_{10} = 4$$

$$a_{14} = ? \quad a_1 + 13d = -\frac{4\omega}{17} + \frac{100}{17} = \frac{4\omega}{17}$$

(۳)

$$a_{10} + a_{14} = 4\omega$$

$$a_{10} = 10\omega$$

$$a_{14} = 10$$

$$\begin{cases} a_1 + 11d = 10\omega \\ a_1 + 13d = 10 \end{cases} \rightarrow a_1 = -\frac{4\omega}{17}$$

$$13d = 10 \Rightarrow d = \frac{10}{13}$$

✓

$$a_1 + a_2 + a_3 + a_4 + a_5 = \frac{1}{5} (a_1 + a_2 + a_3 + a_4 + a_5)$$

$$\frac{a_1}{a_1} \rightarrow \text{برابر}$$

$$\omega a_1 + 1 \cdot d = \frac{1}{5} (\omega a_1 + 4d)$$

$$\frac{10}{5} a_1 = \frac{4}{5} d \Rightarrow \omega d = 1 \cdot a_1 \Rightarrow d = 2a_1 \Rightarrow \frac{a_2}{a_1} = \frac{a_1 + 2a_1}{a_1} = \frac{3a_1}{a_1} = 3$$

$$t_n = t_{n-1} + 1 \omega, \quad \frac{t_n^2 - t_{\omega}^2}{t_v} = ?$$

$$t_a = t_4 + 1 \omega$$

$$t_{\omega} = t_v + 1 \omega$$

$$t_v = t_e + 1 \omega$$

$$\Rightarrow a_1 + 1d = a_1 + \omega d + 1 \omega \Rightarrow d = \omega$$

$$\frac{(a_1 + 5\omega)^2 - (a_1 + 2\omega)^2}{(a_1 + 3\omega)} = \frac{6a_1 + 12\omega}{a_1 + 3\omega} = 6$$

$$\frac{a_1^2 + 12\omega a_1 + 12\omega^2 - a_1^2 - 4\omega^2 - 6a_1\omega}{a_1 + 3\omega} = \frac{12\omega a_1 + 8\omega^2}{a_1 + 3\omega} = \frac{4\omega(3a_1 + 2\omega)}{a_1 + 3\omega} = 6\omega$$

$$d = \frac{12 + 12 - 2 + 12}{12} \Rightarrow d = \frac{12}{12} \Rightarrow d = 1$$

$$a_n - a_1 = d(n-1)$$

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$$\frac{12 - 2}{n - 1 + 1} = d = \frac{10}{n} = \frac{10}{n(n-1)} = \frac{10}{n(n-1)} = d, \quad 11 = 1 + n \left(\frac{10}{n(n-1)} \right)$$

$$1 + n \left(\frac{10}{n(n-1)} \right) = 11 \Rightarrow \frac{10n}{n(n-1)} = 10 \Rightarrow n = 10$$

$$\text{برابر}$$

واسطه

$$a_n + a_{n+1} = a_m + a_{m+1} \Rightarrow n + n + 1 = m + m + 1 \Rightarrow n = m$$

$$a_n = 2a_{\frac{n}{2}} \Rightarrow a_n = 2a_{\frac{n}{2}}$$

$$a_1 + v d = 2a_1 + 9d \Rightarrow a_1 = 8d$$

$$a_n = a_1 + (n-1)d = 0 \Rightarrow -d + nd - d = -2d + nd = 0 \Rightarrow d(-2 + n) = 0 \Rightarrow n = 2$$

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