

نام و نام خانوادگی زیرمبایستید پاسخنامه تشریحی تکلیف شماره 15... کلاس A

$$a_n = \frac{1}{r} \cdot 2^{n-1}$$

$$a_n = \frac{1}{r} \cdot x^{n-1}$$

$$a_{10} = \frac{1}{x} \cdot x^9 = 259$$

$$\frac{a_{11}}{a_{12}} = \frac{aq^4}{aq^5} = q^2 = 25 \Rightarrow 14$$

$$a_2 [a_1 a_2 a_3 a_4 a_5] a_{10}$$

$$a_{10} = \frac{1}{r} \cdot x^{n-1} \Rightarrow 2^{n-1} \Rightarrow 259 \Rightarrow n=10$$

$$a_n = \frac{1}{r} \cdot x^{n-1} \Rightarrow 2^{n-1} \Rightarrow 259 \Rightarrow n=10$$

الف) 259

ب) 14

ج) 22

د) 9

1

$$\frac{a_1}{a_6} = \frac{aq^0}{aq^5} = q^5 = \frac{94}{12} \Rightarrow q=2$$

$$a_2 = 14$$

$$a_1 = \frac{14}{2} = 7$$

5

$$a_{10} = 9 \cdot 2^9 = \frac{9}{2} \cdot 2^9 = 4608$$

2

ضرب و جد و (جمله اول)

$$(a_n)^2 = 252 \Rightarrow a_n = 16$$

1

$$\frac{a}{r} = 252 \Rightarrow a = 252r$$

الف) 20

ب) 9

3

$$x+1, n, x-1$$

$$(11) (12) (13)$$

داده شده

$$\frac{x}{x+1} = \frac{x-1}{n} \Rightarrow x^2 = n^2 - 1 \Rightarrow x = \sqrt{n^2 - 1}$$

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جمع عبارات با علامت مثبت

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

1) برکت

$$(x+1)(1-x) = (x^2 - 1) \Rightarrow 1 - x^2 = x^2$$

$$1 - x^2 = x^2$$

$$2x^2 = 1$$

$$x = \pm \frac{\sqrt{2}}{2}$$

$$\frac{a_v}{a_r} = \frac{aq^4}{aq^5} = q^2 = \frac{x}{n+1}$$

$$\frac{a_{11}}{a_v} = \frac{aq^4}{aq^5} = q^2 = \frac{x-1}{n}$$

2) برکت

$$r, \sqrt{2}, r$$

$$(2\sqrt{2})^2 = 2r^2 \Rightarrow 2r^2 = 2r^2 \Rightarrow a+b = 2$$

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

5

4

$$a_1 + a_1 q^r \leq 1 \quad a(1+q^r) \leq 1 \rightarrow a \leq \frac{1}{1+q^r}$$

$$a_1 q + a_1 q^r \leq 1 \quad a q(1+q) \leq 1 \rightarrow \frac{1}{1+q^r} q(1+q) \leq 1 \rightarrow 1+q \leq \frac{1}{q} (1+q^r)$$

$$\left. \begin{array}{l} a_1, q \leq 1, r \\ a_1, q \leq 2, r, \frac{1}{r} \\ 1, r, q, 2, r \\ 2, r, q, 2, r \end{array} \right\} \text{بیشترین مقدار (2r)}$$

$$\begin{aligned} & 1+q \leq \frac{1}{q} (1+q^r) \rightarrow q+q^2 \leq 1+q^r \rightarrow q^2 - q^r \leq 1-q \\ & \text{با ضرب کردن در } q^r \text{ و استفاده از } q^r > 0 \text{ داریم:} \\ & q^{2+r} - q^{2r} \leq q^r - q^{r+1} \end{aligned}$$

$$\left\{ \begin{array}{l} a_1 + a_1 q + a_1 q^2 \leq 1 \\ a_1 q + a_1 q^2 + a_1 q^3 \leq 1 \end{array} \right. \rightarrow a_1 \leq \frac{1}{q} \rightarrow \frac{1}{q} (1+q+q^2) \leq 1$$

$$\begin{array}{|l} a_1 \leq 1 \\ q \leq 2 \\ \hline a_1 \leq q \\ q \leq \frac{1}{q} \end{array} \quad \begin{array}{|l} 1, r, q \\ \hline 9, 3, 1 \end{array} \quad \begin{array}{|l} a_1 \leq \frac{1}{q} \\ q_1 \leq \frac{1}{q} \end{array}$$

$$a_1 \leq \frac{1}{q} \rightarrow a_1 \leq \frac{1}{q} \rightarrow a_1 \leq \frac{1}{q}$$

$$\begin{aligned} & (1+q+q^2) \leq 1 \\ & q^2 + q + 1 \leq 1 \\ & q^2 - 1 \leq -q \end{aligned}$$

$$\Delta = (-1)^2 - 4 \times 1 \times 1 = -3 < 0$$

$$a_n \leq 2, 4, 11 \quad a_n = 2 \times 10^{n-1}$$

$$S_{10} \leq \frac{2(10^{10}-1)}{10-1} \leq 10^{10} - 1 \leq 10^{10} \leq 1$$

$$\begin{aligned} & a_{10} \leq 2 \times 10^9 \quad (2 \times 10^9)^{10} \\ & (2 \times 10^9)^{10} \leq (2 \times 10^9)^{10} \leq (2 \times 10^9)^{10} \end{aligned}$$

$$a_n = a_1 q^{n-1} \quad (n=1, 2, 3, \dots)$$

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

تفاوت متوالی

$$b_n \leq a_1 q^n - a_1 q^{n-1} = a_1 q^{n-1} (q-1) \rightarrow (a_1 (q-1)) q^{n-1} \leq a_n$$

مجموعه اول متوالی

$$a, a+d, a+2d, \dots, a+(n-1)d \quad S_n = a + (a+d) + (a+2d) + \dots + [a+(n-1)d]$$

$$S_n = [a+(n-1)d] + [a+(n-2)d] + \dots + a$$

$$S_n = \frac{n}{2} [2a + (n-1)d] \rightarrow S_n = \frac{n}{2} [2a + (n-1)d]$$

$$S_n \leq \frac{a(q^n-1)}{q-1}$$

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