

نام و نام خانوادگی پسخنامه تشریحی تکلیف شماره ۱۰۰... کلاس دهم دبیرستان.....

$$a_n = \frac{1}{r}, 1, r, \dots \Rightarrow a_1 = \frac{1}{r} \quad r=2 \Rightarrow a_n = a_1 \times r^{n-1} = \frac{1}{r} \times r^{n-1} = r^{n-2}$$

$$n=1 \Rightarrow a_{10} = r^{10-2} = r^8 = 256$$

$$\frac{a_{17}}{a_{13}} = q^4 = r^4 = 16$$

$$b^2 = \sqrt{ac} \quad a_8 = r^6 \Rightarrow \sqrt{ac} = b^2 = \sqrt{r^{10}} \Rightarrow b = \pm r^5 = \pm 32$$

$$a_n = r^{n-2} = 128 \Rightarrow n-2 = 7 \Rightarrow n=9$$

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$$a_{10} = 12$$

$$a_1 = 94 \Rightarrow \frac{a_1}{a_{10}} = q^9 = 1 \Rightarrow q = 1$$

$$a_1 \times r^9 = 12 \Rightarrow a_1 \times 14 = 12 \Rightarrow a_1 = \frac{12}{14} = \frac{6}{7}$$

$$a_{10} = a_1 \times r^9 = \frac{6}{7} \times 14 = 12$$

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$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = a_1^5 \times r^{10} = r^8 \times 3 = 3^5 \Rightarrow$$

$$(a_1 \times r^2)^5 = 3^5 \Rightarrow a_1 \times r^2 = 3$$

$$a_1 \times a_5 = a_1^2 \times r^8 = (a_1 \times r^2)^2 = 3^2 = 9$$

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$$r^a, \sqrt[r]{r}, r^b \Rightarrow \frac{r^b}{r^a} = \frac{r^{\frac{a}{r}}}{r^a} \Rightarrow r^{a+b} = r^a \Rightarrow a+b=a$$

$$a, \frac{a}{r}, b \rightarrow \text{نسبتی متوالی} \quad \frac{a+b}{r} = \frac{a}{r}$$

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$$a_{10} = \frac{1}{1-n} \quad a_{11} = 1+n$$

$$\frac{a_{11}}{a_{10}} = \frac{a_{11}}{a_{10}} = q^1 \Rightarrow \frac{1+n}{1-n} = \frac{1}{-n} \Rightarrow n^2 = -n^2 + 1 \Rightarrow 2n^2 = 1$$

$$n = \pm \sqrt{\frac{1}{2}} = \pm \frac{\sqrt{2}}{2}$$

برای $n = -\frac{\sqrt{2}}{2}$ حاصل $\frac{a_{11}}{a_{10}} = q^1$ عددی مثبت می شود

در صورتی که q مقبلاً نامتناهی است پس $n = -\frac{\sqrt{2}}{2}$ غیر قابل قبول است

(۱، ۷۵)

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$$a_1 + a_2 = 11 \rightarrow a_1(1+q^2) = 11$$

$$a_2 + a_4 = 12 \rightarrow a_1 q(1+q^3) = 12$$

$$11q^2 - 12q + 11 = 12q \Rightarrow 11q^2 - 10q + 11 = 0$$

$$\left\{ \begin{array}{l} q=3 \Rightarrow a_1 = \frac{11}{1+9} = 1 \Rightarrow 1, 3, 9, 27 \\ q=\frac{1}{3} \Rightarrow a_1 = \frac{11}{1+\frac{1}{9}} = 27 \Rightarrow 27, 9, 3, 1 \end{array} \right.$$

$$\frac{a_1(1+q^2)(q^2-q+1)}{a_1 q(1+q)} = \frac{11}{12}$$

$$(11q^2 - 10q + 11)(q-3) = 0$$

$$27 = \text{مقدار}$$

$$a_1 + a_2 + a_4 = 11 \Rightarrow a_1 \left(\frac{q^3-1}{q-1} \right) = a_1 (q^2+q+1) = 11$$

$$a_1 \times a_2 \times a_4 = 12 \Rightarrow a_1^3 (q^3) = 12 \Rightarrow a_1 q = 3 = a_2$$

$$\frac{11}{q} + 3 + 3q = 11 \Rightarrow 11 \left(\frac{1}{q} + 1 + q \right) = 11 \Rightarrow \frac{q^2+q+1}{q} = \frac{11}{3}$$

$$11q^2 + 11q + 11 = 11q \Rightarrow 11q^2 - 10q + 11 = 0$$

$$(11q^2 - 10q + 11)(q-3) = 0 \Rightarrow \left\{ \begin{array}{l} q=3 \Rightarrow a_1 q = 3 \Rightarrow a_1 = 1 \Rightarrow 1, 3, 9 \\ q=\frac{1}{3} \Rightarrow a_1 q = 3 \Rightarrow a_1 = 9 \Rightarrow 9, 3, 1 \end{array} \right.$$

$$a_n = 2, 4, 8, \dots \Rightarrow a_1 = 2, q = 2 \Rightarrow a_n = 2 \times 2^{n-1}$$

$$S_{10} = a_1 \left(\frac{q^{10}-1}{q-1} \right) = 2 \left(\frac{2^{10}-1}{2-1} \right) = 2^{10} - 1$$

$$P_{10} = a_1 \times a_2 \times \dots \times a_{10} = a_1^{10} \times q^{1+2+\dots+9} = 2^{10} \times 2^{45}$$

$$a_1, a_2, a_3, \dots$$

$$a_2 - a_1 = a_1(q-1)$$

$$a_3 - a_2 = a_2(q-1) = a_1 q (q-1)$$

$$a_4 - a_3 = a_3(q-1) = a_1 q^2 (q-1)$$

مجموعه عبارت ها در سمت چپ q ضرب شده اند
و قدر نسبت q

$$\begin{aligned} & a_1 + a_2 + a_3 + \dots + a_n \\ \Rightarrow & a_1 + (a_1 d) + (a_1 + d) + \dots + (a_1 + (n-1)d) = a_1 \times n + d(1+2+\dots+(n-1)) = \frac{n}{2} (2a_1 + (n-1)d) = S_n \end{aligned}$$

$$\begin{aligned} & a_1 + a_2 + a_3 + \dots + a_n \\ \Rightarrow & a_1 + a_1 q + a_1 q^2 + \dots + a_1 q^{n-1} = a_1 (1 + q + q^2 + \dots + q^{n-1}) \Rightarrow a_1 \left(\frac{q^n - 1}{q - 1} \right) = S_n \end{aligned}$$

$$\begin{aligned} * \rightarrow & \frac{q^n - 1}{q - 1} = 1 + q + q^2 + \dots + q^{n-1} \\ (q-1)A &= q^n - 1 \Rightarrow A = q^n - 1 \end{aligned}$$