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نام و نام خانوادگی: فرنام: جواب: پاسخنامه تشریحی تکلیف شماره ۲ ... کلاس ... دهم پسر B

$$a_n = \frac{1}{2} \times 2^n$$

$$a = \frac{1}{2} \quad q = 2$$

$$a_7 = \sqrt{16} \times 2 = 32 \quad \checkmark$$

$$a_4 = 4$$

$$a_{10} = 256$$

$$a_{10} = aq^9 \rightarrow \frac{1}{2} \times 2^9 \quad (\text{لف})$$

$$2^{-1} \times 2^9 = 2^8 \quad \checkmark$$

$$a_{10} = aq^9 = 256 \Rightarrow 256 \times \frac{1}{2} = a_1 \quad \checkmark$$

$$a_n = \frac{1}{2} \times q^{n-1} \rightarrow \frac{1}{2} \times 2^{n-1} = 128 \rightarrow 2^{n-1} = 256 \times 2 \quad \checkmark$$

$$(ب) \quad \frac{aq^4}{aq^2} = \frac{q^4}{q^2} = q^2 = 2^2 = 4 \quad \checkmark$$

$$aq^4 = 12$$

$$aq^4 = 96$$

$$a \times 2^4 = 12$$

$$\frac{aq^4}{aq^2} = \frac{96}{12} = 8 \quad \checkmark$$

$$16a = 12 \quad a = \frac{12}{16}$$

$$aq^4 = ? \quad \checkmark$$

$$aq^4 = \frac{12}{2^4} \times 2^4 = 12 \times 2^4 = 192 \quad \checkmark$$

$$a_{10} = aq^9 = 256 \quad \checkmark$$

$$\frac{a^3}{q^3} \times \frac{a^3}{q^3} \times a^3 \times a^3 \times a^3 \times a^3 \times a^3 = 243 \Rightarrow a^5 = 243 \quad \checkmark$$

$$a_1 \times a_5 = \frac{a^5}{q^4} \times a^5 \times q^4 \Rightarrow a^5 \cdot a^5 = 3 \times 3 \times 3 \quad \checkmark$$

$$2^a \cdot 2^b = 4\sqrt{2} \times 4\sqrt{2}$$

$$2^{a+b} = 32$$

$$2^a = 32$$

$$a+b=5 \rightarrow \frac{5}{2} = 2.5 \quad \checkmark$$

$$a_3 = 1-x$$

$$a_7 = x$$

$$a_{11} = x+1$$

$$\frac{a_{11}}{a_7} = \frac{a_7}{a_3} \quad \checkmark$$

$$\frac{x+1}{x} = \frac{x}{1-x} \rightarrow x^2 = 1-x^2 \rightarrow 2x^2 = 1 \quad \checkmark$$

$$x^2 = \frac{1}{2} \quad \checkmark$$

فقط + قابل قبول است زیرا به ازای $\frac{1}{2}$ و 3 جملات فرد با هم علامت می‌زنند.

$$1, 3, 9, 27, \dots \quad 27, 9, 3, 1$$

در این دنباله ها ی شصت

$$a(1+q^3) = 18 \quad aq(1+q) = 12$$

$$\frac{a(q+1)(q^2-q+1)}{a \cdot q(q+1)} = \frac{18}{12} \rightarrow \textcircled{2} \quad 3q = 3q^2 - 3q + 3$$

$$3q^2 - 6q + 3 = 0 \rightarrow q^2 - 2q + 1 = 0 \rightarrow (q-1)(q-1) = 0 \quad q = \frac{1}{3}, 1$$

$$a + aq + aq^2 = 13$$

$$a(1+q+q^2) = 13$$

$$\frac{13}{q}(1+q+q^2) = 13 \Rightarrow 3q + 3 + \frac{13}{q} = 13$$

$$3q + \frac{13}{q} = 10 \quad 3q^2 - 10q + 13 = 0 \rightarrow \textcircled{2} \quad 1, 3, 9$$

$$a \cdot aq \cdot aq^2 = 27$$

$$a^3 q^3 = 27 \quad (aq)^3 = 27$$

$$aq = 3 \quad a = \frac{3}{q}$$

$$1, 3, 9, 27, \dots \quad \begin{cases} a=1 \\ q=3 \end{cases}$$

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

$$S_1 = \frac{1(3^1 - 1)}{3 - 1} = 1 \quad S_1 = 3^1 - 1 \quad \textcircled{2}$$

$$P_n = \sqrt[n]{(a_1 \cdot a_2 \cdot \dots \cdot a_n)} \rightarrow P_1 = (a_1 \cdot a_2 \cdot a_3)^{\frac{1}{3}} = (1 \cdot 3 \cdot 9)^{\frac{1}{3}} = (27)^{\frac{1}{3}} = 3$$

$$a, aq, aq^2, aq^3 \rightarrow a - aq = aq - aq^2 = aq^2 - aq^3$$

$$a(1-q) = aq(1-q) = aq^2(1-q) \quad 1 = q = q^2 \quad q = 1 \quad \textcircled{2}$$

در این دنباله های کسری (1, 1/2, 1/4, 1/8, ...) برابر q است

$$S_n = a + a+d + a+2d + \dots + a-(d) + a$$

$$S_n = \beta + \beta - d + \dots + \beta + d + \beta$$

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

$$2S_n = a + a + a + a + a + \dots$$

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

$$S_n = a + aq + aq^2 + \dots + aq^{n-1}$$

سوال دہم ← قسمت ۲

$$\rightarrow \times q \rightarrow qS_n = aq + aq^2 + aq^3 + \dots + aq^n$$

انہی را الزحوی کہری لیسر

$$\rightarrow S_n - qS_n = (a + aq + aq^2 + \dots + aq^{n-1}) - (aq + aq^2 + \dots + aq^n)$$

$$\rightarrow S_n(1-q) = a - aq^n \xrightarrow{\div (1-q)} (q \neq 1)$$

$$\rightarrow S_n = \frac{1-q^n}{1-q} \times a \rightarrow$$