نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

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الف) $t_{10}=aq^9 \Rightarrow q=2$ $\quad a=\frac{1}{2}$ $\quad t_{10}=aq^9=\frac{1}{2}\times 2^9=2^8=256$

ب) $\frac{aq^{16}}{aq^{12}}=q^4=2^4=16$

ج) $a_4=aq^3=\frac{1}{2}\times 2^3=2^2=4$ $\quad a_{10}=aq^9=\frac{1}{2}\times 2^9=2^8=256$

$b^2=a\times c \to b=\sqrt{a\times c}=\sqrt{4\times 256}=32 \to 32=aq^{x-1}=\frac{1}{2}q^{x-1} \to q^{x-1}=64 \Rightarrow x-1=6$

$\to x=7 \to \boxed{a_7=32}$

د) $aq^{x-1}=128=\frac{1}{2}q^{x-1}$ $\quad q^{x-1}=256 \Rightarrow x-1=8$ $\boxed{x=9}$ ✓

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$a_5=12=aq^4$

$a_8=96=aq^7$ $\quad \frac{aq^7}{aq^4}=\frac{96}{12}=q^3=8 \Rightarrow q=2$

$\downarrow$

$a=\frac{12}{q^4}=\frac{12}{16}=\frac{3}{4}$

$a_{10}=aq^9=\frac{3}{4}\times 2^9=\boxed{384}$ ✓

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الف) $a\times aq\times aq^2\times aq^3\times aq^4=a^5q^{10}=243 \to \sqrt[5]{a^5q^{10}}=\sqrt[5]{243}=\boxed{3=aq^2}$

ب) $a\times a\times q^4=a^2q^4 \to (aq^2)^2=(3)^2 \to a^2q^4=\boxed{9}$ ✓

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$\frac{a}{q}, a, aq$ $\quad 2^b=\frac{4\sqrt{2}}{q}$ $\quad q=\frac{4\sqrt{2}}{2^b}$ $\quad \frac{4\sqrt{2}}{2^b}=\frac{2^a}{4\sqrt{2}}$ $\quad 2^{a+b}=32$

$2^b, 4\sqrt{2}, 2^a$ $\quad 2^a=4\sqrt{2}\,q$ $\quad q=\frac{2^a}{4\sqrt{2}}$ $\quad a+b=5$

واسطه $\to \frac{a+b}{2}=\boxed{2.5}$ ✓

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$aq^2=1-x$

$aq^6=x$ $\quad (q^4)$

$aq^{10}=x+1$ $\quad (q^4)$

$\frac{a_{11}}{a_7}=\frac{a_7}{a_3} \Rightarrow \frac{x+1}{x}=\frac{x}{1-x}$

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

$1=2x^2$

$x^2=\frac{1}{2}$ $\quad x=\pm\sqrt{\frac{1}{2}}=\pm\frac{1}{\sqrt{2}}$ ✓

لیلا مرزوعی

$q = \frac{1}{3} \to a = 27$ بزرگترین

$q = 3 \to a = 1 \to$ بزرگترین $= 27$

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$a + aq^3 = 28$

$aq + aq^2 = 12$

$\frac{\cancel{a}(1+q^3)}{\cancel{a}q(1+q)} = \frac{28}{12} = \frac{7}{3}$

$1 + q^3 = (1+q)(1-q+q^2)$

$\frac{\cancel{(1+q)}(1-q+q^2)}{q\cancel{(1+q)}} = \frac{7}{3} \to 7q = 3q^2 - 3q + 3 \to 3q^2 - 10q + 3$

$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{10 \pm \sqrt{64}}{6} = \frac{10 \pm 8}{6} = \boxed{\frac{1}{3} / 3}$

$\boxed{27}$

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$a \times aq \times aq^2 = a^3q^3 = 27 \to aq = 3 \to a = \frac{3}{q}$

$a + \underbrace{aq}_{3} + aq^2 = 13 \to a(1+q+q^2) = 13$

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

$3 + 3q + 3q^2 = 13q$

$3q^2 - 10q + 3 = 0 \to q = \frac{10 \pm 8}{6} = \frac{1}{3} / 3$

$q = 3 \to a_1 = 1$, $a_2 = 3$, $a_3 = 9$

$q = \frac{1}{3} \to a_1 = 9$, $a_2 = 3$, $a_3 = 1$

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الف) $a\left(\frac{q^n - 1}{q-1}\right) = 2\left(\frac{3^{10} - 1}{3-1}\right) = 3^{10} - 1$

ب) $1 + 2 + 3 + \dots + 9 = 45$

$a^{10} q^{45} = \boxed{2^{10} \times 3^{45}}$

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$a \,,\, aq \,,\, aq^2 \,,\, aq^3$ ($\times q$, $\times q$, $\times q$)

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

$a(q-1) \xrightarrow{\times q} aq(q-1) \xrightarrow{\times q} aq^2(q-1) \implies$

قدر نسبت در هر دو q و ثابت است

$\Uparrow$

$q = q'$

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الف) $a_1 , a_2 , a_3 , \dots , a_n$

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

$S_n = a_1 + a_2 + \dots + a_{n-1} + a_n$

$S_n = a_n + a_{n-1} + \dots + a_2 + a_1$

$2S_n = n(a_1 + a_n) \to a_1 + a_n = a_2 + a_{n-1} = a_3 + a_{n-2}$

$S_n = \frac{n}{2}(a_1 + a_n) = \frac{n}{2}(a_1 + a_1 + d(n-1))$

$(2a_1 + (n-1)d)$

ب) $a_1 , a_2 , \dots , a_n$

$a_n = a \times q^{n-1}$

$S_n = a + aq + aq^2 + aq^3 + \dots + aq^{n-1}$

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

$S_n - qS_n = a - aq^n$

$S_n(1-q) = a(1-q^n)$

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