نام و نام خانوادگی ...احسان زارعی..... پاسخنامه تشریحی تکلیف شماره ...۱۲... کلاس ...دهم پسر A.....

۱۹,۲۵

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الف) $t_{10} = a_1 q^9 = \frac{1}{2} \times 2^9 = 2^8$

$t_{17} = a_1 q^{16} = \frac{1}{2} \times q^{16} = 2^{15}$ و $t_{12} = a_1 q^{11} = \frac{1}{2} \times 2^{11} = 2^{10}$ $\quad \frac{2^{15}}{2^{11}} = \boxed{2^4}$

$t_4 = \frac{1}{2} \times q^3 = 2^2$ و $t_{10} = 2^8 \Rightarrow 2^2 \times 2^8 = q^3 \Rightarrow 2^{10} = q^3 \Rightarrow q = 2^{\frac{10}{3}}$

$128 = \frac{1}{2} q^{x-1} \Rightarrow x = 9$

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$\left.\begin{array}{l} a_1 q^2 = 12 \\ a_1 q^7 = 96 \end{array}\right\} \Rightarrow q^5 = 8 \Rightarrow q = \boxed{2} \Rightarrow a_1 = \boxed{\frac{3}{4}}$

$t_{10} = a_1 q^9 \Rightarrow \frac{3}{4} \times 2^9 = 3 \times 2^7$

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الف) $a \times ar \times ar^2 \times ar^3 \times ar^4 = a^5 \times r^{10} = 243$

$a^5 \times r^{10} = 243 \Rightarrow (ar^2)^{10} = 243 \Rightarrow ar^2 = \sqrt[5]{243} \Rightarrow$

$243 = 3^5 \Rightarrow \sqrt[5]{243} = 3 \Rightarrow a_3 = \boxed{3}$

ب) $a \times (a \times r^4) = a^2 \times r^2 \Rightarrow a \times r^2 = 3 \Rightarrow a = \frac{3}{r^2} \Rightarrow \left(\frac{3}{r^2}\right)^2 \times r^4 = \frac{9}{r^4} \times r^4 = \boxed{9}$

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$(\sqrt[4]{2})^a = 2^b \times 2^a \Rightarrow 2^{a+b} = 32 \Rightarrow a + b = 5$

$\Rightarrow \frac{a+b}{2} = \frac{5}{2} = \boxed{2/5}$

۱,۷۵

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

طرفین معادله

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

غ ق ق q^4 ۲۰ میشه!

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$a + ar^2 = 28 \Rightarrow a(1+r^2) = 28$

$ar + ar^2 = 12 \Rightarrow ar(1+r) = 12$

$\Rightarrow \frac{r}{r(1+r)}(1+r^2) = \frac{28}{12}$

$\Rightarrow 3r^3 - 7r^2 - 7r + 3 = 0 \Rightarrow \begin{cases} r = \frac{1}{3} \Rightarrow a = \frac{12}{\frac{1}{3}(1+\frac{1}{3})} = 27 \\ r = 3 \Rightarrow a = \frac{12}{3(1+3)} = 1 \end{cases}$

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

$a \times ar \times ar^2 = a^3r^3 = 27 \Rightarrow (ar)^3 = 27 \Rightarrow ar = 3$

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

$3 + 3r + 3r^2 = 13r \Rightarrow 3r^2 - 10r + 3 = 0 \Rightarrow \begin{cases} r = \frac{1}{3} \\ r = 3 \end{cases} \Rightarrow \boxed{1, 3, 9}$

۱,۷۵

$\boxed{1, 3, 9}$

الف)

$S_{10} = 2\left(\frac{3^{10}-1}{3-1}\right) = \boxed{3^{10}-1}$

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ب)

$a_1^n r^{\frac{(n-1)n}{2}} \Rightarrow \boxed{2^{10} \times 3^{45}}$

$a, ar, ar^2, \ldots \xrightarrow{\text{تفاضل حسابی}} ar - a, ar^2 - ar, \ldots \Rightarrow ar - a = a(r-1)$

$ar^2 - ar = ar(r-1) = a(r-1)r \xrightarrow{\text{جمله } n\text{ام}} a(r-1)r^{n-1}$

در این حالت تشکیل یک دنباله هندسی با جمله اول است

$\frac{a(r-1)r}{a(r-1)} = r$ قدر نسبت

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الف)

$S_n = [a_1 + (n-1)d] + [a_1 + (n-2)d] + \cdots a_1$

$S_n = a_1 + (a_1 + d) + (a_1 + 2d) + \cdots + [a_1 + (n-1)d]$

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

ب)

$S_n = a + ar + ar^2 + \cdots ar^{n-1}$

$rS_n = ar + ar^2 + ar^3 + \cdots + ar^n$

$S_n - rS_n = (a + ar + ar^2 + \cdots ar^{n-1}) - (ar + ar^2 + \cdots ar^n)$

$\Rightarrow S_n(1-r) = a - ar^n \Rightarrow S_n = \frac{a(1-r^n)}{1-r}$

تفاضل سری

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