

Subject...

Day... Month... Year...

اساتذہ خیر کمال دوست مرصوف

19, 75 عالیہ 11

سیبانی
الن

$$1. a_1 = \frac{1}{2}, q = 2$$

$$3. a_{10} = \frac{1}{2} \times 2^9 = 2048$$

$$5. \frac{a_{14}}{a_{13}} = q^{14-13} = q^1 = 2^1 = 2$$

$$7. b^2 = ac \Rightarrow \sqrt{2 \times 2048} = \sqrt{2^{11}} = 2^5 = 32$$

$$9. a_n = a_1 q^{n-1} \Rightarrow 128 = \frac{1}{2} \times 2^{n-1} \Rightarrow 256 = 2^{n-1}$$

$$11. \Rightarrow n-1=8 \Rightarrow n=9$$

$$13. q^{n-m} = \frac{a_n}{a_m} \Rightarrow q^{1-5} = \frac{96}{12} \Rightarrow q^4 = 8 \Rightarrow q = 2$$

$$15. a_n = a_m \times q^{n-m} \Rightarrow a_{10} = a_1 \times 2^{10-1} \Rightarrow a_{10} = 96 \times 2^9 = 31456$$

$$17. \frac{a_2}{q^2} \times \frac{a_2}{q} \times a_2 \times (a_2 \times q) \times (a_2 \times q^2) = a_2^5 = 243 \Rightarrow a_2 = 3$$

$$19. a_2 = 3$$

$$21. \frac{3}{q^2} \times (3 \times q^2) = 9$$

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$$r\sqrt{r} = r^{\frac{5}{2}}, b^r = ac$$

$$\Rightarrow (r^{\frac{5}{2}})^r = r^a \times r^b \Rightarrow r^{\frac{5}{2}r} = r^a \times r^b \Rightarrow a + b = \frac{5}{2}$$

$$\frac{a+b}{r} = \frac{\frac{5}{2}}{r}$$

$$11 - r = 5 \quad r - 5 = 5$$

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

$$\Rightarrow \frac{1}{\sqrt{r}} \times \frac{\sqrt{r}}{\sqrt{r}} = \frac{\pm \sqrt{r}}{r} \quad \text{أثر } x = -\frac{\sqrt{r}}{r} \text{ باس } q^2 \text{ منقسمه}$$
$$\frac{-\frac{\sqrt{r}}{r}}{1 + \frac{\sqrt{r}}{r}} = q^2 \quad \text{عنه } X$$

$$a_1 + aq^r = 11 \Rightarrow a(1 + q^r) = 11$$

$$aq + aq^r = 12 \Rightarrow aq(1 + q) = 12$$

$$\frac{a(1 + q^r)}{aq(1 + q)} = \frac{11}{12} \Rightarrow \frac{(1 + q)(1 - q + q^r)}{q(1 + q)} = \frac{11}{12}$$

$$\Rightarrow r(1 - q + q^r) = 11q \Rightarrow r - rq - rq^r = 11q$$

$$\Rightarrow rq^r - 11q + r = 0 \Rightarrow q = \frac{-10 \pm \sqrt{100 - 4r^2}}{2r}$$

$$\begin{cases} q = r \Rightarrow ra(1 + r) = 12 \Rightarrow a_1 = 1 \\ q = \frac{1}{r} \Rightarrow a, q(1 + q) = 12 \Rightarrow a_1 = 12r \end{cases}$$

$$q = r \Rightarrow 1, r, q, 12r, q = \frac{1}{r} \Rightarrow 12r, q, c, 1$$

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$$\frac{ar}{q} \times ar \times ar \times q = 27 \Rightarrow ar^3 = 27 \Rightarrow ar = 3 \quad a_1 = \frac{r}{q} \quad (V)$$

$$\Rightarrow a_1 + ar + ar^2 = 13 \xrightarrow{ar=3} a_1 + ar = 1.$$

$$\Rightarrow a_1(1+q^2) = 13 \Rightarrow \left(\frac{r}{q}\right)(1+q^2) = 13$$

$$\Rightarrow \left(\frac{r}{q}\right)\left(\left(\frac{r}{q} \times 1\right) + \left(\frac{r}{q} \times q^2\right)\right) = 13$$

$$\Rightarrow \frac{r}{q} + r = 13 \xrightarrow{\times q} r + rq^2 = 13q$$

$$\Rightarrow rq^2 - 13q + r = 0 \Rightarrow q = \frac{13 \pm 1}{2} \quad \begin{cases} r \\ \frac{1}{r} \end{cases}$$

$$q = r \rightarrow 1, c, q$$

$$q = \frac{1}{r} \rightarrow q, c, 1$$

$$S_n = r \left(\frac{r^n - 1}{r - 1} \right) = 89.21 \quad \begin{matrix} \text{co} \times \text{co} \\ \uparrow \end{matrix}$$

$$b) P_n = (a_1 \cdot a_n)^n \quad \begin{matrix} \text{اما } a_n \text{ اندازیر} \\ \text{روى سجد اول امتحان كنير} \end{matrix} \rightarrow P_n = a_1^n \times q^{\frac{n(n-1)}{2}}$$

$$\Rightarrow 21 \times 3^{\frac{1 \cdot (1-1)}{2}} = 21 \times 3^{40} \Rightarrow 1.22 \times 10^{40}$$



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$$A = a_1, a_1q, a_1q^2, \dots, a_1q^{n-1}$$

$$B \rightarrow b_1 = a_2 - a_1 = a_1q - a_1$$

$$b_r = a_r - a_{r-1} = a_1q^r - a_1q^{r-1} \Rightarrow b_n = a_n - a_{n-1} = a_1q^n - a_1q^{n-1}$$

$$\frac{b_r}{b_1} = \frac{b_r}{b_r} \Rightarrow \frac{a_1q(q-1)}{a_1(q-1)} = q \quad \left[\frac{b_r}{b_r} = q \right]$$

نسبت متوالی = q ✓

$$\text{الف) } S_n = a_1 + (a_1 + d) + (a_1 + 2d) + \dots + (a_1 + (n-1)d)$$

یا برعکس
(تبدیل)

$$S_n = a_n + (a_n - d) + (a_n - 2d) + \dots + (a_1 + d) + a_1$$

$$\Rightarrow S_n = (a_1 + (n-1)d) + (a_1 + (n-2)d) + \dots + a_1$$

$$\text{د) } \Rightarrow 2S_n = \underbrace{(2a_1 + (n-1)d)}_{\text{جفت}} + \underbrace{(2a_1 + (n-1)d)}_{\text{جفت}} + \dots$$

بن جفت بار میخورد

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

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

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$$1 \quad \text{ب) } S_n = a_1 + a_1 q + a_1 q^2 + \dots + a_1 q^{n-1} \quad (1)$$

$$3 \quad \times q \rightarrow q S_n = a_1 q + a_1 q^2 + a_1 q^3 + \dots + a_1 q^n \quad (2)$$

$$5 \quad (1) - (2) \quad q S_n - S_n = a_1 q^n - a_1$$

$$7 \quad \Rightarrow S_n (q - 1) = a_1 (q^n - 1) \Rightarrow S_n = a_1 \frac{q^n - 1}{q - 1}$$