

$$a + ar + ar^2 = 11 = 21 \Rightarrow a + ar + ar^2 = 21 \Rightarrow a(1 + r + r^2) = 21$$

$$ar^3 = 64 \Rightarrow (ar)^3 = 64 \Rightarrow ar = \sqrt[3]{64} = 4 \Rightarrow ar = 4$$

$$a = \frac{4}{r} \Rightarrow \frac{4}{r} + 4 + 4r = 21 \Rightarrow 4r^2 - 17r + 4 = 0 \Rightarrow$$

$$0 = 225 \Rightarrow r = \frac{17 \pm \sqrt{225}}{8} \Rightarrow \begin{cases} r = 4 \\ r = \frac{1}{4} \end{cases}$$

$$\frac{rx}{x^2-2} = \frac{x^2+r}{x^2-2} \Rightarrow rx^2 = x^2 + rx^2 - 1 \Rightarrow 0 = x^2 - 2x^2 - 1 \Rightarrow$$

$$y^2 - 2y^2 - 1 = 0 \Rightarrow y = \frac{2 \pm \sqrt{4+4}}{2} \Rightarrow y = 2 \Rightarrow x^2 = 2 \Rightarrow x = \pm \sqrt{2}$$

$$1, x_1, x_2, x_3, x_4, x_5, x_6 = 64 \Rightarrow a = 1 \Rightarrow ar^5 = 64 \Rightarrow r = \sqrt[5]{64} \Rightarrow r = 2$$

$$\Rightarrow 1, 2, 4, 8, 16, 32, 64 = A = (1)$$

$$2, 4, 8, 16, 32, 64, 128 = 128 \Rightarrow a = 64 \Rightarrow ar^4 = 128 \Rightarrow r = \frac{1}{2}$$

$$4, 8, 16, 32, 64, 128, 256 = 256 \Rightarrow B = 1 \Rightarrow B + A = (4)$$

جواب سوال ۳ با فرض معذرت

$$d = a_n - a_1 = \frac{-95}{5} - (-25) = \frac{1}{5} \Rightarrow a_n = \frac{n-95}{5} \Rightarrow a_{101} = \frac{1}{5} = (1)$$

$$t_n = a_{101} = 1 \Rightarrow r^n = 1 \cdot n^{-1} = n^{-1} \Rightarrow r^n = n^{-1} \Rightarrow r = n^{-\frac{1}{n}} \Rightarrow \boxed{\frac{1}{2}}$$

جواب سوال ۵

$$S_n = 4(1 + q + q^2 + \dots + q^{n-1}) \Rightarrow S_\omega = 4(1 + q + q^2 + q^3 + \dots)$$

$$\Rightarrow S_\omega = 243 \times \frac{121}{11} \Rightarrow S_\omega = (243)$$

جواب سوال ۳ با فرض معذرت می خدایم

$$(a+rd)^r = (a+rd)(a+rd) \Rightarrow (a+rd)(a+rd) = a^r + r \cdot a \cdot d + r \cdot d^r$$

$$a^r + r \cdot a \cdot d + r \cdot d^r = a^r + r \cdot a \cdot d + r \cdot d^r \Rightarrow r \cdot a \cdot d + r \cdot d^r = 0 \Rightarrow$$

$$r \cdot d (a + d) = 0 \Rightarrow a + d = -1 \cdot d^r = a = -1 \cdot d = d = \frac{-a}{10}$$

$$\underline{d = 0}$$

$$(a+rd)^r = (a+rd)(a+rd) \Rightarrow r \cdot a \cdot d + r \cdot d^r = r \cdot a \cdot d + r \cdot d^r \Rightarrow$$

$$a = d \Rightarrow r = \frac{a}{a} = \frac{r \cdot d}{r \cdot a} = r \Rightarrow a_1 = r_1, r^1 = \frac{1}{r} + r^1 = \frac{r}{r}$$

$$r(a_r) = r \cdot a_r + a_r \Rightarrow r \cdot a_r + a_r = r \cdot a_r + a_r \Rightarrow (r = r + r)$$

$$\Rightarrow r(r^r - r + r) = 0 \Rightarrow (r-1)(r+r) = 0 \Rightarrow \boxed{r=1} \Rightarrow r \neq 1$$

$$a_1 = r_1, a_1 + d = r_1 \cdot d^r, a_1 + r \cdot d = r_1 \cdot d^r \Rightarrow \begin{cases} r=1 \\ r=2 \end{cases}$$

$$\Rightarrow \boxed{r=1} \Rightarrow r_1 + r \cdot d = r_1 \cdot d^r \Rightarrow r_1 (1 + r \cdot d^r) = r_1 \cdot d^r \Rightarrow \boxed{d=r}$$

بجانب اما استنباطی یا به سبب اوله ایا این بحث نوشتن

$$a = \frac{9-1}{f} \Rightarrow a = \frac{8}{f} \Rightarrow a_n = \frac{1}{f} \Rightarrow a_{1,r} = -1 \Rightarrow$$

$$(1+k) \cdot \left(\frac{1}{f} + k\right) \cdot \left(\frac{8}{f} + k\right) \Rightarrow \left(\frac{1}{f} + k\right)^2 = (1+k) \cdot \left(\frac{8}{f} + k\right)$$

$$\Rightarrow k = \frac{-1}{f} \Rightarrow 1 - \frac{1}{f} = \frac{-1}{f} \Rightarrow r = \frac{-1}{-1} = \boxed{\frac{f}{8}}$$

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