

$$a_n = a_1 r^{n-1} = \frac{1}{r} \times r^9 = r^8 = 256$$

(الف)

$$\frac{a_{14}}{a_{13}} = \frac{a_1 r^{13}}{a_1 r^{12}} = r = r^8 = 16$$

(ب)

$$a_7 = a_1 r^6 \rightarrow \frac{1}{r} \times r^8 \times \frac{1}{r} \times r^9 = r^{16} \rightarrow a_7 = r^8 = 32$$

(ج)

$$a_7^{n-1} = \frac{1}{r} \times r^{16} = 128 \rightarrow 9 \text{ امین جملہ}$$

(د)

$$\frac{a_7}{a_1} = r^6 = \frac{94}{12} = 8 \rightarrow r = 2$$

$$a_{10} = a_1 \times r^9 = 94 \times 2 = 188$$

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 \times a_6 \times a_7 = a^8 = 128 \rightarrow a = 2$$

الف ← ۳

$$a_1 \times a_2 \times a_3 = a^3 = 3^3 = 27 \leftarrow \text{ب}$$

$$r^a, \sqrt{r}, r^b \rightarrow (\sqrt{r})^2 = r^a \times r^b \rightarrow r^2 = r^{a+b} \rightarrow a+b=2$$

$$\text{واسطی حساب سے } a+b = \frac{2}{r} = 2.5$$

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

فقط $\frac{\sqrt{2}}{2}$ رہے گا

۱۱۷۵

$$\begin{aligned} a_1 + a_2 &= 21 \rightarrow a + ar = 21 \\ a_2 + a_3 &= 12 \rightarrow ar + ar^2 = 12 \end{aligned} \rightarrow \frac{a(1+r)}{ar(1+r)} = \frac{21}{12} \rightarrow \frac{(1+r)(1-ar+r^2)}{ar(1+r)} = \frac{7}{4}$$

$$\rightarrow 3-3q+3q^2 = 7q \rightarrow 3q^2 - 10q + 3 = 0 \quad \Delta = 100 - 4(9) = 64 \rightarrow q = \frac{10 \pm \sqrt{64}}{6} \rightarrow \frac{10+8}{6} = 3 \text{ or } \frac{10-8}{6} = \frac{1}{3}$$

$$1, 3, 9, 27 \rightarrow \text{دسبہ موجود}$$

$$1, 27, 9, 3 \rightarrow \text{دسبہ موجود}$$

$$a_1 \times a_2 \times a_3 = 27 \rightarrow a_1^3 = 27 \rightarrow a_1 = 3$$

$$a + 3a + 12a = 14a = 14 \rightarrow a = 1$$

$$\text{جملہ} = 1, 3, 9$$

$$S_n = a_1 \left(\frac{r^n - 1}{r - 1} \right) = \frac{1 \times (3^{10} - 1)}{3 - 1} = 3^{10} - 1$$

$$\left(\frac{1}{3} \right)^n = \left(\frac{1}{3} \right)^9 \times \left(\frac{1}{3} \right) = \left(\frac{1}{3} \right)^9 \times \left(\frac{1}{3} \right) = \left(\frac{1}{3} \right)^{10} \times \left(\frac{1}{3} \right) = \left(\frac{1}{3} \right)^{11}$$

الف - ۱

ب

$$\text{دنباله اولی} = a, aq, aq^2$$

$$\text{دنباله دومی} = (a - aq), (aq - aq^2), \dots \rightarrow a(1-q), aq(1-q)$$

$\xrightarrow{\times q}$

قرار نسبت دنباله ی دوم به همان قدر نسبت دنباله ی اول است

$$a, a+d, a+2d, \dots, a+(n-1)d$$

$$\begin{cases} S_n = a + a+d + a+2d + \dots + a+(n-1)d \\ S_n = a+(n-1)d + a+(n-2)d + \dots + a \end{cases}$$

$$\rightarrow 2S_n = (a + a+(n-1)d) + (a+(n-2)d + a+d)$$

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

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

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

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

الف

-10

ب