

$$a_n = \frac{1}{r} \times (r)^{n-1} \rightarrow a_n = \frac{1}{r} \times r^9 = r^8$$

$$\frac{a_{12}}{a_{13}} = \frac{ar^{12}}{ar^{13}} : r^k \rightarrow (r)^k = 18$$

این خط را
اشباه کنید

$$a \times c = b^r$$

$$\left. \begin{aligned} a_8 &= \frac{1}{r} \times r^7 = r^6 \\ a_{11} &= \frac{1}{r} \times r^{10} = r^9 \end{aligned} \right\} r^6 \times r^3 = r^9 = b^r$$

$$12n = \frac{1}{r} \times r^{n-1} \rightarrow r^6 = \frac{1}{r} \times r^{n-1} \rightarrow r^6 = r^{n-1} \rightarrow n-1=6 \rightarrow n=7$$

$$\left. \begin{aligned} a_8 &= 12 \rightarrow ar^7 \\ a_{11} &= 99 \rightarrow ar^{10} \end{aligned} \right\} \frac{ar^{10}}{ar^7} = \frac{99}{12} \rightarrow r^3 = 1 \rightarrow r=1$$

$$a_n = a_1 \times r^{n-1} = \frac{3}{r} \times r^9 = 3 \times r^8 = 3 \times 1^8 = 3$$

$$a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 243$$

$$(a_3)^5 = 243 \rightarrow a_3 = 3$$

$$a_1 \times a_5 = a_3^2 \rightarrow a_1 = 1$$

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

$$\frac{a+b}{2} = \frac{a}{2} = \frac{1}{2} \times 1 = \frac{1}{2}$$

$$\left. \begin{aligned} a_1 &= 1-n \\ a_2 &= n \\ a_3 &= n+1 \end{aligned} \right\} \frac{a_2}{a_3} = \frac{a_1}{a_2} \rightarrow r = \frac{1-n}{n} \rightarrow r = 1-n$$

$$r^2 = 1 \rightarrow r = \pm 1$$

$$\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{2}{\sqrt{2}} = \sqrt{2}$$

Arman

$$a_1 + a_2 = 21 \rightarrow a + ar^2 = 21 \rightarrow a(1+r^2) = 21$$

$$a_1 + a_3 = 12 \rightarrow ar + ar^3 = 12 \rightarrow ar(1+r^2) = 12$$

$$\frac{a(1+r^2)}{ar(1+r)} = \frac{21}{12} \rightarrow \frac{(1+r)(1+r^2-r)}{r(1+r)} = \frac{7}{4} \rightarrow 3+3r^2-3r=7r \rightarrow 3r^2-10r+3=0$$

$$\Delta = 100 - 36 = 64 \rightarrow r = \frac{10 \pm \sqrt{64}}{6} \rightarrow r = \frac{10 \pm 8}{6} \rightarrow r = \frac{1}{3} \text{ or } 3$$

$$r = 3 \Rightarrow 1, 3, 9, 27, \dots \quad r = \frac{1}{3} \Rightarrow 27, 9, 3, 1, \dots$$

$$a_1 + a_2 + a_3 = 12 \rightarrow a + ar + ar^2 = 12 \rightarrow a(1+r+r^2) = 12$$

$$3r^2 - 10r + 3 = 0 \rightarrow \Delta = 100 - 36 = 64 \rightarrow r = \frac{10 \pm \sqrt{64}}{6} \rightarrow r = \frac{10 \pm 8}{6} \rightarrow r = \frac{1}{3} \text{ or } 3$$

$$r = 3 \Rightarrow 1, 3, 9$$

$$r = \frac{1}{3} \Rightarrow 9, 3, 1$$

$$a_1 = 2, 4, 11, \dots$$

$$S_n = \frac{(a^n - 1)}{(a - 1)} a_1 \rightarrow \frac{(3^{10} - 1)}{(3 - 1)} = \frac{3^{10} - 1}{2}$$

$$a_1 \times a_2 \times a_3 \times \dots \times a_n = (a_1 \cdot a_2)^{\frac{n}{2}} = (a_1 \cdot a_2)^{\frac{n}{2}}$$

$$a_1 = ar^2 \rightarrow 2 \times (3)^2 \rightarrow (2 \times (3 \times 3))^2 \rightarrow (2 \times 9)^2 \rightarrow 18^2 = 324$$

(4)

(51)
(سقا)
 $a, ar, ar^2, \dots$

$$ar - a = a(r-1) \quad \times r$$

$$ar^2 - ar = ar(r-1)$$

$$\vdots$$

$$\vdots$$

$$ar^n - ar^{n-1} = ar^n(r-1) \quad \times r$$

قدر نسبت دریا/عدد $r = 1$

$$a(r-1) = \text{جمله اول}$$

جمله محو =

$$(a(r-1)) \times r^{n-1}$$

$$r = \frac{a_r}{a_1} \Rightarrow \frac{ar(r+1)}{a(r+1)} \rightarrow \boxed{r=1}$$

$$a_1, a_2, a_3, \dots \rightarrow a_1 + (a_1 + d) + (a_1 + 2d) + \dots + (a_1 + (n-1)d)$$

$$na + d(1 + 2 + 3 + \dots + (n-1)) \rightarrow na + d \frac{(n-1)(n)}{2} =$$

$$\frac{n}{2} (2a + (n-1)d)$$

مختصراً سادہ دات صیف
(ب)

$$0 + aq + aq^2 + \dots + aq^{(n-1)}$$

$$S = a + \cancel{aq} + \cancel{aq^2} + \dots + \cancel{aq^{(n-1)}}$$

$$Sq = \cancel{aq} + \cancel{aq^2} + \cancel{aq^3} + \dots + aq^n$$

$$S - Sq = a - aq^n \Rightarrow S_{(1-q)} = a(1-q^n)$$

$$S = \frac{a(1-q^n)}{(1-q)}$$