

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

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

این خط را
اشباه کنید

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

$$\left. \begin{array}{l} a_8 = \frac{1}{r} \times r^8 = r^7 \\ a_{11} = \frac{1}{r} \times r^{11} = r^{10} \end{array} \right\} r^7 \times r^3 = r^{10} = b^r$$

$$b = r^6 = 32$$

$$12n = \frac{1}{r} \times r^{n-1} \rightarrow r^7 = \frac{1}{r} \times r^{n-1} \rightarrow r^7 \neq r^{n-1} \rightarrow \begin{array}{l} n-1=7 \\ n=8 \end{array}$$

$$\left. \begin{array}{l} a_8 = 12 \rightarrow ar^7 \\ a_n = 99 \rightarrow ar^n \end{array} \right\} \frac{ar^n}{ar^7} = \frac{99}{12} \rightarrow r^3 = 1 \rightarrow \begin{array}{l} r=1 \\ a = \frac{r}{r} \end{array}$$

$$a_n = a_1 \times r^{n-1} = \frac{3}{r} \times r^9 = 3 \times r^8 = 3 \times 16$$

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

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

$$a_1 \times a_5 = a_3^2 \rightarrow 9$$

$$r^a \times r^b = (5\sqrt{2})^r \rightarrow r^{a+b} = 32 \rightarrow a+b=5$$

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

$$\left. \begin{array}{l} a_1 = 1-n \\ a_n = n \end{array} \right\} \frac{a_n}{a_1} = \frac{a_{n+1}}{a_n} \rightarrow r = \frac{(1-n)(1+n)}{1-n} \rightarrow r = 1-n$$

$$r^n = 1 \rightarrow \frac{r^n}{r} = \frac{1}{r} \rightarrow \begin{array}{l} n = \frac{1}{\sqrt{2}} \end{array}$$

$$\frac{1}{\sqrt{2}} \text{ فقط } + \frac{1}{\sqrt{2}} \text{ است}$$

Arman

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

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

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

$$3r^2 - 10r + 3 = 0 \rightarrow \Delta = 100 - 36 = 64 \left\{ r = \frac{10 \pm \sqrt{64}}{6} \rightarrow r \right.$$

$$r = 3 \Rightarrow 1, 3, 9, 27, \dots \left\{ 27 \right.$$

$$a_1 + a_2 + a_3 = 13 \rightarrow a + ar + ar^2 = 13 \rightarrow \frac{r \times (r^2 - 10r + 3)}{r} = 0$$

$$a_1 \times a_2 \times a_3 = (a_1)^3 = 27 \rightarrow a = 3$$

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

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

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

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

$$a_1 \times a_2 \times a_3 \times \dots \times a_n = (a_1 \cdot a_2)^n = (a_1 \cdot a_2)^n$$

$$a_1 = ar^2 \rightarrow r \times (r^2)^n \rightarrow (r \times (r \times r^2))^n \rightarrow (r^4 \times r^2)^n = r^6 \times r^{4n}$$

زمرہ سادات عینی

۳

۴

(۵۱) (سفا)
 $a, ar, ar^2, \dots$

$$ar - a = a(r-1) \quad \left. \begin{array}{l} \times r \\ \times r \\ \vdots \\ \times r \end{array} \right\}$$

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

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

قدر نسبت دریا/عدد = $r = 1$

جمله اول = $a(r-1)$

جمله محو =

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

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

زمر اسادات عینی

(۳)

(۱۵)

الف

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

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

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

مختصراً سادہ دات صیف
(ب)

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

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

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

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

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