



# DSSSB TGT

## PART (A+B)



# MATHS

## AP, GP & HP

Part -4



22/04/2024 04:00PM



## # Assuming Numbers in GP :-

$$\text{ODD} \rightarrow \begin{cases} \text{Three} \rightarrow \frac{a}{r}, a, ar \\ \text{Five} \rightarrow \frac{a}{r^2}, \frac{a}{r}, a, ar, ar^2 \end{cases}$$

$$\text{EVEN} \rightarrow \begin{cases} \text{Two} \rightarrow \frac{a}{r}, ar \\ \text{Four} \rightarrow \frac{a}{r^3}, \frac{a}{r}, ar, ar^3 \end{cases}$$

गुणोत्तर माध्य (G.M.)  $\rightarrow$

$$G = \sqrt{ab}$$

$$G = (a \times b \times c \dots n)^{\frac{1}{n}}$$

# दो संख्याओं  $a$  व  $b$  के बीच  $n$  गुणोत्तर माध्य हैं।

$a, G_1, G_2, G_3, \dots, G_n, b$

$G_1, G_2, G_3, \dots, G_n$

$$\text{Terms} = (n+2)$$

$$T_n = ar^{n-1}$$

$$T_{n+2} = ar^{n+2-1}$$

$$b = ar^{n+1}$$

$$\frac{b}{a} = r^{n+1}$$

$$r = \left( \frac{b}{a} \right)^{\frac{1}{n+1}}$$

$\Rightarrow \frac{1}{3}$  व 243 के मध्य 5 गुणोत्तर माध्य हैं।

$\Rightarrow \frac{1}{3}, G_1, G_2, G_3, G_4, G_5, 243$   $G_4, G_3, G_2 = ?$

$$r = \left( \frac{243}{\frac{1}{3}} \right)^{\frac{1}{5+1}} = (729)^{\frac{1}{6}} = (3^6)^{\frac{1}{6}} = 3$$

$\Rightarrow \frac{1}{3}, 1, 3, 9, 27, 81, 243$

1,9

$\frac{1}{3}, 1, 3, 9, 27, 81, 243$   
GM

$$\sqrt{\frac{1}{3} \times 3}$$

$\Rightarrow$  ①

$$\sqrt{1 \times 9} = ③$$

$$\frac{9, 81}{\sqrt{9 \times 81}}$$

$$3 \times 9 = ②7$$

# यदि दो संख्याओं के बीच केवल 2 ही दान हों।

$a, G_1, G_2, b$

$a, G_1, G_2, b$   
 $a, ar, ar^2, ar^3$

$$r = \left(\frac{b}{a}\right)^{\frac{1}{n+1}} \Rightarrow \left(\frac{b}{a}\right)^{\frac{1}{3}}$$

$$G_1 = ar \Rightarrow a \times \frac{b^{1/3}}{a^{1/3}}$$

$$\Rightarrow a^{2/3} \times b^{1/3} \Rightarrow (a^2 b)^{1/3}$$

$$\checkmark G_1 = (a^2 b)^{1/3}$$

$$\checkmark G_2 = (a b^2)^{1/3}$$

# # Harmonic Progression

हरात्मक श्रृंखला

समानांतर श्रृंखला का  
Reciprocal, HP होता है।

Standard form  $\rightarrow \frac{1}{a}, \frac{1}{a+d}, \frac{1}{a+2d}, \frac{1}{a+3d}, \frac{1}{a+4d}, \dots, \frac{1}{a+nd}$

$a, a+d, a+2d, a+3d$

AP

General Term  $\rightarrow T_n \Rightarrow \frac{1}{a+(n-1) \cdot d}$

$a+(n-1) \cdot d$

$$d = \frac{1}{4} - \frac{1}{2} \Rightarrow \frac{2-4}{8} \Rightarrow \frac{-2}{8} \Rightarrow \frac{-1}{4}$$

$$\Rightarrow \frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \frac{1}{10} \dots$$

$$T_{21} = ? \frac{1}{42}$$

$$\begin{aligned} a + (n-1) \cdot d &= \frac{1}{42} \\ &= \frac{2 + 20 \cdot 2}{42} \end{aligned}$$

$$2, 4, 6, 8, 10, \dots$$

$$a = 2, \quad d = 4 - 2 \Rightarrow 2$$

$$T_n = a + (n-1) \cdot d$$

$$T_{21} = 2 + (20) \cdot 2$$

$$= 2 + 40 \Rightarrow 42$$

# दो संख्याओं  $a$  व  $b$  के बीच यदि हार्मिक माध्य  
 $H$  है तो

$$H = \frac{2ab}{a+b} \text{ या } \frac{2}{H} = \frac{1}{a} + \frac{1}{b}$$



# Relation between AM, GM & HM