

Examples

Tuesday, April 6, 2021 9:51 AM

- Ex. i) the fourth proportional to 4, 9, 12.
 ii) the third proportional to 16 and 36
 iii) the mean proportional betⁿ 0.08 & 0.18.

Ans. (i) 27 //

(ii) 81 //

(iii) 0.12 //

Ex. Divide Rs. 1162 among A, B, C in the ratio

$$\boxed{35 : 28 : 20.}$$

$$\rightarrow \text{sum of ratio} = (35 + 28 + 20) = 83$$

$$A's \text{ share} = \text{Rs.} \left(1162 \times \frac{35}{83} \right) = \text{Rs.} 490$$

$$B's \text{ share} = \text{Rs.} \left(1162 \times \frac{28}{83} \right) = \text{Rs.} 392$$

$$C's \text{ share} = \text{Rs.} \left(1162 \times \frac{20}{83} \right) = \text{Rs.} 280 //$$

$$\frac{a}{35x} + \frac{b}{28x} + \frac{c}{20x} = 1162$$

$$83x = 1162$$

$$x = \frac{1162}{83}$$

Ex if $x:y = 3:1$ then $x^2 - y^3 : x^3 + y^2 = ?$

$$\Rightarrow \frac{x}{y} = \frac{3}{1} \Rightarrow \frac{x^3}{y^3} = \frac{27}{1}$$

$$\Rightarrow \frac{x^3 - y^3}{x^3 + y^3} = \frac{27 - 1}{27 + 1} = \frac{26}{28} = 13:14,$$

Ex If $a:b = c:d = e:f = 1:2$ then $(pa+qc+re):(pb+qd+sf)$ is equal to

$$\frac{a}{b} = \frac{c}{d} = \frac{e}{f} = \frac{1}{2}$$

$$\frac{pa}{pb} = \frac{qc}{qd} = \frac{re}{rf} = \frac{1}{2}$$

$$\Rightarrow \frac{(pa+qc+re)}{pb+qd+sf} = \frac{1}{2} = 1:2,$$

$$\Rightarrow \frac{(P_a + Q_c + R_e)}{(P_b + Q_d + R_f)} = \frac{1}{2} \therefore 1:2,$$

Six Divide Rs. 3600 among P, Q, R in ratio 7:2:9. Find amount received by Q.

$$\text{Ans. } Q = 600.$$

Six The ratio betⁿ two nos. $\frac{12}{13}$: $\frac{2}{13}$. If each no. is reduced by 20. the ratio become 2:3. find square of 2nd no.

$$\text{Let two no. } 12x \text{ & } 13x \Rightarrow \frac{26}{13x - 20} = \frac{2}{3}$$

$$\frac{12x - 20}{13x - 20} = \frac{2}{3}$$

$$\Rightarrow 3(12x - 20) = 2(13x - 20)$$

$$\Rightarrow 36x - 60 = 26x - 40$$

$$\Rightarrow x = 2,$$

Ex The amount of money is to be divided b/w P, Q, R in the ratio 2:5:7. If total of P's and R's share is Rs. 800 more than Q's share. find P's share?

$$\underline{P \text{ share}} + Q \text{ share} - Q \text{ share} = 800$$

$$\frac{2x}{14} + \frac{7x}{14} - \frac{5x}{14} = 800$$

$$\frac{4x}{14} = 800 \Rightarrow x = 800 \times \frac{14}{4} \\ \Rightarrow x = 2800 //$$

$$\frac{2x}{14} \Rightarrow \frac{2}{14} \times 2800 \Rightarrow 400 //$$

Ex A bag contains 50P, 25P, 10P coins in the ratio 5:9:4 amounting to Rs. 206. find the no. of coins of 50P. ?

$$\frac{5x}{2} + \frac{9x}{4} + \frac{4x}{10} = 206$$

$$50x + 225x + 8x =$$

$$50P = 5 \times 40 = \cancel{200} // 100$$

$$\Rightarrow \frac{50x + 45x + 8x}{20} = 2.6$$

$$--r - \cancel{-} \times 40 - \cancel{(200/1)} \cancel{100}$$

$$25P = \cancel{2.6} = 11$$

$$\Rightarrow 103x = 206 \times 20$$

$$10P = 4 \times 10 = 40$$

$$\Rightarrow x = 40$$

206.

Ex. A mixture of alcohol & water in the ratio of 4:3. If 5 ltrs of water added to the mixture the ratio becomes 4:5. find the quantity of alcohol in the given mixture.

$$\frac{4x}{3x+5} = \frac{4}{5} \Rightarrow 20x = 12x + 20$$

$$\Rightarrow x = 2.5$$

$$\Rightarrow 4 \times x \Rightarrow 4 \times 2.5 \boxed{10 \text{ ltrs.}}$$

7.5 ltrs

Ex. Seats for arts, commerce & science are in the ratio of 3:5:8. if students studying in arts, commerce & science is increased by 20%, 40% and 25% respectively. find new ratios

$$\frac{3}{100} : \frac{5}{100} : \frac{8}{100}$$

$$\Rightarrow 18 : 35 : 50$$

\therefore 20 boys and 25 girls from a group of social workers. During their membership drive, the same amount of boys and girls joined in the group. How many members does the group have now if the ratio of girls to boys is 8:7

$$\frac{20+x}{25+x} = \frac{7}{8} \Rightarrow x = 15$$

$$20 + 15 + 25 + 15 = 75$$

\therefore No of students in Arts & science in the institute are in the ratio of 5:8 if 150 students join in Arts while 80 join in Science the ratio become 3:4. Originally the total no of Arts & Science?

$$117^{\circ} \text{ II} \quad \frac{5x + 150}{8x + 80} = \frac{3}{4}$$

$$\Rightarrow x = 9^{\circ}$$

$$\Rightarrow 52 + 8x = 13x \Rightarrow 13x - 52 = 117^{\circ} \text{ II}$$

∴ 72g ml of combination has coffee and water in the ratio 7:2. Now when more water to be included to get new ratio 7:3,

$$\text{i) } \text{coffee} = 72g \times \frac{7}{9} = 56.7 \text{ ml}$$

$$\text{water} = 72g \times \frac{2}{9} = 16.2 \text{ ml}$$

$$\frac{56.7}{16.2 + x} = \frac{7}{3} \Rightarrow x = 81 \text{ ml.}$$

$$\text{ii) } C : W = \left(\begin{matrix} 7 \\ 7 \end{matrix} : 2 \right) \text{ N}$$

$$C : W = \left(\begin{matrix} 7 \\ 7 \end{matrix} : 3 \right) \text{ N}$$

$$\text{Add water} = \frac{729}{9} \times 1 = 81 \text{ ml.}$$

Ex Rs. 6800 is divided among three persons, A, B & C in such a way that A received $\frac{2}{5}$ of the total shares B & C together. Find the share of B.

C N P.