



Exercise 8C

$$\begin{aligned}\frac{3a+5b}{3a-5b} &= \frac{5}{1} \\ 3a+5b &= 15a-25b \\ 12a &= 30b \\ \frac{a}{b} &= \frac{30}{12} = \frac{5}{2}\end{aligned}$$

$$\therefore a : b = 5 : 2$$

Q12

Answer :

(c) 9

$$\begin{aligned}7 \times 45 &= x \times 35 \quad (\text{Product of extremes} = \text{Product of means}) \\ \Rightarrow 35x &= 315 \\ \Rightarrow x &= 9\end{aligned}$$

Q13

Answer :

(b) 7

Suppose that x is the number that is to be added.

$$\text{Then, } (3+x) : (5+x) = 5 : 6$$

$$\begin{aligned}\Rightarrow \frac{3+x}{5+x} &= \frac{5}{6} \\ \Rightarrow 18 + 6x &= 25 + 5x \\ \Rightarrow x &= 7\end{aligned}$$

Q14

Answer :

(d) 40

Suppose that the numbers are x and y .

Then, $x : y = 3 : 5$ and $(x + 10) : (y + 10) = 5 : 7$

$$\frac{x}{y} = \frac{3}{5}$$

$$x = \frac{3y}{5}$$

$$\Rightarrow \frac{x+10}{y+10} = \frac{5}{7} \Rightarrow 7x+70 = 5y+50 \Rightarrow 7 \times \frac{3y}{5} + 70 = 5y+50 \Rightarrow 5y - \frac{21y}{5} =$$

$$20 \Rightarrow \frac{4y}{5} = 20 \Rightarrow y = 25 \text{ Therefore, } x = \frac{3 \times 25}{5} = 15$$

Hence, sum of numbers = $15 + 25 = 40$

Q15

Answer :

(a) 3

Suppose that x is the number that is to be subtracted.

Then, $(15 - x) : (19 - x) = 3 : 4$

$$\Rightarrow \frac{15-x}{19-x} = \frac{3}{4}$$

Cross multiplying, we get :

$$60 - 4x = 57 - 3x$$

$$\Rightarrow x = 3$$

Q16

Answer :

(a) Rs 180

$$A's \text{ share} = \frac{3}{7} \times 420 = 180$$

Q17

Answer :

(d) 416

Let x be the number of boys.

Then, $8 : 5 = x : 160$

$$\Rightarrow \frac{8}{5} = \frac{x}{160}$$

$$\Rightarrow x = \frac{8 \times 160}{5} = 256$$

$$\therefore \text{Total strength of the school} = 256 + 160 = 416$$

Q18

Answer :

(a) (2 : 3)

LCM of 3 and 7 = $7 \times 3 = 21$

$$\frac{2 \times 7}{3 \times 7} = \frac{14}{21} \text{ and } \frac{4 \times 3}{7 \times 3} = \frac{12}{21}$$

Clearly, $\frac{12}{21} < \frac{14}{21}$

Hence, $(4 : 7) < (2 : 3)$

Q19

Answer :

(c) 16

Suppose that the third proportional is x .

Then, $9 : 12 :: 12 : x$

$$\Rightarrow 9 \times x = 12 \times 12 \quad (\text{Product of extremes} = \text{Product of means})$$

$$\Rightarrow 9x = 144$$

$$\Rightarrow x = 16$$

Q20

Answer :

(b) 12

Suppose that the mean proportional is x .

Then, $9 : x :: x : 16$

$$9 \times 16 = x \times x \quad (\text{Product of extremes} = \text{Product of means})$$

$$\Rightarrow x^2 = 144$$

$$\Rightarrow x = 12$$

Q21

Answer :

(a) 18 years

Suppose that the present ages of A and B are $3x$ yrs and $8x$ yrs, respectively.

After six years, the age of A will be $(3x+6)$ yrs and that of B will be $(8x+6)$ yrs.

Then, $(3x+6) : (8x+6) = 4 : 9$

$$\Rightarrow \frac{3x+6}{8x+6} = \frac{4}{9}$$

$$\Rightarrow 27x + 54 = 32x + 24$$

$$\Rightarrow 5x = 30$$

$$\Rightarrow x = 6$$

Hence, the present ages of A and B are 18 yrs and 48 yrs, respectively.

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