

A vessel is filled with liquid, 3 parts of which are water and 5 parts syrup. How much of the mixture must be drawn off and replaced with water so that the mixture may be half water and half syrup?

A. $\frac{1}{3}$

$$W : S = 3 : 5$$

B. $\frac{1}{4}$

$$\text{Total amount} = 8 \text{ (let)}$$

C. $\frac{1}{5}$

$$\text{Taken off} = x \Rightarrow \begin{aligned} W &= \frac{3}{8}x \\ S &= \frac{5}{8}x. \end{aligned}$$

D. $\frac{1}{7}$

$$W = 3 - \frac{3}{8}x + x$$

$$S = 5 - \frac{5}{8}x$$

$$W = S \Rightarrow 3 - \frac{3}{8}x + x = 5 - \frac{5}{8}x$$

$$-\frac{3}{8}x + x + \frac{5}{8}x = 5 - 3$$

$$\frac{-3x + 8x + 5x}{8} = 2$$

$$\frac{10x}{8} = 2 \Rightarrow x = \frac{16}{10} = \frac{8}{5}$$

$$\text{fraction} = \frac{x}{\text{total}} = \frac{\frac{8}{5}}{8} = \frac{1}{5}$$

Tea worth Rs. 126 per kg and Rs. 135 per kg are mixed with a third variety in the ratio 1 : 1 : 2. If the mixture is worth Rs. 153 per kg, the price of the third variety per kg will be:

A. Rs. 169.50

B. Rs. 170

☒ C. Rs. 175.50

D. Rs. 180

$$\text{Cost of 3rd variety} = x$$

$$\frac{1 \times 126 + 1 \times 135 + 2 \times x}{1 + 1 + 2} = 153$$

$$126 + 135 + 2x = 4 \times 153$$

$$261 + 2x = 612$$

$$2x = 612 - 261$$

$$2x = 351 \Rightarrow x = 175.5$$

A can contains a mixture of two liquids A and B in the ratio 7 : 5. When 9 litres of mixture are drawn off and the can is filled with B, the ratio of A and B becomes 7 : 9. How many litres of liquid A was contained by the can initially?

A. 10

B. 20

C. 21

D. 25

$$A = 7x \xrightarrow{7 \times 3 = 21}, B = 5x \rightarrow \text{Total} = 12x$$

Drawn :- 9 litres

$$A = \frac{7}{12} \times 9 = \frac{21}{4}$$

$$B = \frac{5}{12} \times 9 = \frac{15}{4}$$

$$\text{left :- } A = 7x - \frac{21}{4} \quad B = 5x - \frac{15}{4} + 9$$

$$\frac{A}{B} = \frac{7}{9} \Rightarrow 9A = 7B$$

$$9\left(7x - \frac{21}{4}\right) = 7\left(5x - \frac{15}{4} + 9\right)$$

$$= 63x - \frac{189}{4} = 35x - \frac{105}{4} + 63$$

$$63x - 35x = 63 - \frac{105}{4} + \frac{189}{4}$$

$$28x = \frac{252 - 105 + 189}{4} = \frac{336}{4} = 84$$

$$x = \frac{84}{28} = \frac{12}{4} = 3$$

A milk vendor has 2 cans of milk. The first contains 25% water and the rest milk. The second contains 50% water. How much milk should he mix from each of the containers so as to get 12 litres of milk such that the ratio of water to milk is 3 : 5?

A. 4 litres, 8 litres

B. 6 litres, 6 litres

C. 5 litres, 7 litres

D. 7 litres, 5 litres

$$x + y = 12$$

W

M

I

$$0.25x$$

$$0.75x$$

C. 5 litres, 7 litres

D. 7 litres, 5 litres

$$\begin{array}{r}
 \text{I} \quad 0.25x \quad 0.75x \\
 \text{II} \quad 0.5y \quad 0.5y \\
 \hline
 \text{Total} \quad 0.25x + 0.5y \quad 0.75x + 0.5y \\
 \quad = \frac{25}{100}(x+2y) \quad \frac{75}{100}(3x+2y)
 \end{array}$$

$$w:m = 3:5$$

$$\frac{x+2y}{3x+2y} = \frac{3}{5} \Rightarrow 5x+10y = 9x+6y \\
 -4x = -4y \Rightarrow x=y$$

A and B invest in a business in the ratio 3 : 2. If 5% of the total profit goes to charity and A's share is Rs. 855, the total profit is:

- A. Rs. 1425
- B. Rs. 1500
- C. Rs. 1537.50
- D. Rs. 1576

$$x \Rightarrow 95\% \text{ of profit is shared.}$$

$$A \Rightarrow \frac{95}{100} \times x \times \frac{3}{5} = 855$$

$$x = \frac{1 \times 285}{8 \times 855 \times 100} = \frac{15 \times 100}{19} = 1500$$

A, B and C jointly thought of engaging themselves in a business venture. It was agreed that A would invest Rs. 6500 for 6 months, B, Rs. 8400 for 5 months and C, Rs. 10,000 for 3 months. A wants to be the working member for which, he was to receive 5% of the profits. The profit earned was Rs. 7400. Calculate the share of B in the profit.

- A. Rs. 1900
- ☒ B. Rs. 2660
- C. Rs. 2800
- D. Rs. 2840

$$A : B : C = 6 \times 6500 : 5 \times 8400 : 3 \times 10000$$

$$= 13 : 14 : 10$$

$$B = \frac{14}{37} \times \frac{95}{100} \times \frac{2660}{100} = 2660$$

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