



Linear Equations in One Variable Ex 9.4 Q21

Answer :

Let the denominator be x .

$$\therefore \text{The numerator} = \frac{x+2}{2}$$

$$\therefore \text{The rational number} = \frac{x+2}{2x}$$

According to the question,

$$\frac{\frac{x+2}{2} + 3}{x+3} = \frac{2}{3}$$

$$\text{or } \frac{x+2+6}{2(x+3)} = \frac{2}{3}$$

$$\text{or } \frac{x+8}{2x+6} = \frac{2}{3}$$

$$\text{or } 3x + 24 = 4x + 12$$

$$\text{or } x = 24 - 12$$

$$\text{or } x = 12$$

$$\therefore \text{The rational number} = \frac{12+2}{2 \times 12} = \frac{14}{24} = \frac{7}{12}$$

Linear Equations in One Variable Ex 9.4 Q22

Answer :

Let, the speed of the first train be x km/h.

Then, the speed of the other train will be $(x + 5)$ km/h.

2 hours after they started:

Distance of the first train from the starting point = $2x$ km

Distance of the other train from the starting point = $2(x + 5)$ km

Now,

$$2(x + 5) + 2x + 30 = 340$$

$$\text{or } 4x + 10 + 30 = 340$$

$$\text{or } 4x = 340 - 40$$

$$\text{or } x = \frac{300}{4} = 75$$

\therefore Speed of the first train = 75 km/h.

Speed of the other train = $(75 + 5) = 80$ km/h.

Linear Equations in One Variable Ex 9.4 Q23

Answer :

It is given that the speed of the stream is 1 km/h.

Let the speed of the steamer in still water be x km/h.

\therefore Downstream speed = $(x + 1)$ km/h

Upstream speed = $(x - 1)$ km/h

The downstream and upstream distances are same; therefore, we have :

$$9(x + 1) = 10(x - 1)$$

$$\text{or } 9x + 9 = 10x - 10$$

$$\text{or } x = 19$$

\therefore Speed of the steamer in still water = 19 km/h.

Distance between the ports = $9(19 + 1) = 180$ km.

***** END *****