



Linear Equations in One Variable Ex 9.3 Q21

Answer :

$$\frac{(x+2)(2x-3)-2x^2+6}{x-5} = 2$$

$$\text{or } \frac{2x^2+x-6-2x^2+6}{x-5} = 2$$

$$\text{or } \frac{x}{x-5} = 2$$

$$\text{or } 2x - 10 = x \quad \left[\text{After cross multiplication} \right]$$

$$\text{or } 2x - x = 10$$

$$\text{or } x = 10$$

Thus, $x = 10$ is the solution of the given equation.

Check :

Substituting $x = 10$ in the given equation, we get :

$$\text{L.H.S.} = \frac{(10+2)(2 \times 10 - 3) - 2 \times 10^2 + 6}{10 - 5} = \frac{12 \times 17 - 200 + 6}{5} = \frac{10}{5} = 2$$

$$\text{R.H.S.} = 2$$

$\therefore \text{L.H.S.} = \text{R.H.S. for } x = 10.$

Linear Equations in One Variable Ex 9.3 Q22

Answer :

$$\frac{x^2 - (x+1)(x+2)}{5x+1} = 6$$

$$\text{or } \frac{x^2 - x^2 - 2x - x - 2}{5x+1} = 6$$

$$\text{or } \frac{-3x-2}{5x+1} = 6$$

$$\text{or } 30x + 6 = -3x - 2 \quad \left[\text{After cross multiplication} \right]$$

$$\text{or } 30x + 3x = -2 - 6$$

$$\text{or } 33x = -8 \text{ or } x = \frac{-8}{33}$$

Thus, $x = \frac{-8}{33}$ is the solution of the given equation.

Check :

Substituting $x = \frac{-8}{33}$ in the given equation, we get :

$$\text{L.H.S.} = \frac{\left(\frac{-8}{33}\right)^2 - \left(\frac{-8}{33} + 1\right)\left(\frac{-8}{33} + 2\right)}{5\left(\frac{-8}{33}\right) + 1} = \frac{\frac{64}{1089} - \frac{25}{33} \times \frac{58}{33}}{\frac{-40}{33} + 1} = \frac{\frac{64}{1089} - \frac{1450}{1089}}{\frac{-7}{33}} = \frac{\frac{-1386}{1089}}{\frac{-7}{33}} = \frac{42}{7} = \text{R.H.S.} = 6$$

$\therefore \text{L.H.S.} = \text{R.H.S. for } x = \frac{-8}{33}$

Linear Equations in One Variable Ex 9.3 Q23

Answer :

$$\frac{(2x+3)-(5x-7)}{6x+11} = \frac{-8}{3}$$

$$\text{or } \frac{-3x+10}{6x+11} = \frac{-8}{3}$$

$$\text{or } -9x + 30 = -48x - 88 \quad \left[\text{After cross multiplication} \right]$$

$$\text{or } -9x + 48x = -88 - 30$$

$$\text{or } 39x = -118 \text{ or } x = \frac{-118}{39}$$

Thus, $x = \frac{-118}{39}$ is the solution of the given equation.

Check :

Substituting $x = \frac{-118}{39}$ in the given equation, we get :

$$\text{L. H. S.} = \frac{-3\left(\frac{-118}{39}\right)+10}{6\left(\frac{-118}{39}\right)+11} = \frac{354+390}{-708+429} = \frac{744}{-279} = \frac{-8}{3}$$

$$\text{R. H. S.} = \frac{-8}{3}$$

$$\therefore \text{L. H. S.} = \text{R. H. S. for } x = \frac{-118}{39}$$

Linear Equations in One Variable Ex 9.3 Q24

Answer :

$$\left(\text{i} \right) \frac{x^2-9}{5+x^2} = \frac{-5}{9}$$

$$\text{or } 9x^2 - 81 = -25 - 5x^2 \quad \left[\text{After cross multiplication} \right]$$

$$\text{or } 9x^2 + 5x^2 = -25 + 81$$

$$\text{or } 14x^2 = 56$$

$$\text{or } x^2 = \frac{56}{14}$$

$$\text{or } x^2 = 4 = 2^2$$

$$\text{or } x = 2$$

Thus, $x = 2$ is the solution of the given equation.

Check :

Substituting $x = 2$ in the given equation, we get :

$$\text{L. H. S.} = \frac{2^2-9}{5+2^2} = \frac{4-9}{5+4} = \frac{-5}{9}$$

$$\text{R. H. S.} = \frac{-5}{9}$$

$$\therefore \text{L. H. S.} = \text{R. H. S. for } x = 2.$$

$$\left(\text{ii} \right) \frac{y^2+4}{3y^2+7} = \frac{1}{2}$$

$$\text{or } 3y^2 + 7 = 2y^2 + 8 \quad \left[\text{After cross multiplication} \right]$$

$$\text{or } 3y^2 - 2y^2 = 8 - 7$$

or $y^2 = 1$

or $y = 1$

Thus, $y = 1$ is the solution of the given equation.

Check :

Substituting $y = 1$ in the given equation, we get :

$$\text{L.H.S.} = \frac{1^2 + 4}{3(1)^2 + 7} = \frac{5}{10} = \frac{1}{2}$$

$$\text{R.H.S.} = \frac{1}{2}$$

$\therefore \text{L.H.S.} = \text{R.H.S.}$ for $y = 1$.

***** END *****