Linear Equations in One Variable Ex 9.2 Q1

Answer :

$$\frac{2x+5}{3} = 3x - 10$$

$$\text{or } 2x + 5 = 9x - 30$$

$$\text{or } 9x - 2x = 5 + 30$$

$$\text{or } 7x = 35$$

$$\text{or } x = \frac{35}{7}$$

$$\text{or } x = 5$$

Verification :

$$\text{L.H.S.} = \frac{10+5}{3} = \frac{15}{3} = 5$$

$$\text{R.H.S.} = 15 - 10 = 5$$

$$\therefore \text{ L.H.S.} = \text{R.H.S. for } x = 5.$$

Linear Equations in One Variable Ex 9.2 Q2

Answer :

$$\frac{a-8}{3} = \frac{a-3}{2}$$

$$\text{or } 2a - 16 = 3a - 9$$

$$\text{or } 3a - 2a = -16 + 9$$

$$\text{or } a = -7$$

Verification :

$$\text{L.H.S.} = \frac{-7-8}{3} = \frac{-15}{3} = -5$$

$$\text{R.H.S.} = \frac{-7-3}{2} = \frac{-10}{2} = -5$$

$\therefore$ L.H.S. = R.H.S. for a = -7

Linear Equations in One Variable Ex 9.2 Q3

Answer :

$$\frac{7y+2}{5} = \frac{6y-5}{11}$$

$$\text{or } 77y + 22 = 30y - 25$$

$$\text{or } 77y - 30y = -25 - 22$$

$$\text{or } 47y = -47$$

$$\text{or } y = \frac{-47}{47} = -1$$

Verification :

$$\text{L.H.S.} = \frac{-7+2}{5} = \frac{-5}{5} = -1$$

$$\text{R.H.S.} = \frac{-6-5}{11} = \frac{-11}{11} = -1$$

$\therefore$ L.H.S. = R.H.S. for y = -1

Linear Equations in One Variable Ex 9.2 Q4

Answer :

$$x - 2x + 2 - \frac{16}{3}x + 5 = 3 - \frac{7}{2}x$$

$$\text{or } \frac{3x - 6x + 6 - 16x + 15}{3} = \frac{6 - 7x}{2}$$

$$\text{or } \frac{-19x + 21}{3} = \frac{6 - 7x}{2}$$

$$\text{or } -38x + 42 = 18 - 21x$$

$$\text{or } -21x + 38x = 42 - 18$$

$$\text{or } 17x = 24$$

$$\text{or } x = \frac{24}{17}$$

Check :

$$\text{L.H.S.} = \frac{24}{17} - 2 \times \frac{24}{17} + 7 - \frac{16}{3} \times \frac{24}{17} = \frac{-33}{17}$$

$$\text{R.H.S.} = 3 - \frac{7}{2} \times \frac{24}{17} = \frac{-33}{17}$$

$\therefore$ L.H.S. = R.H.S. for $x = \frac{24}{17}$

Linear Equations in One Variable Ex 9.2 Q5

Answer :

$$\frac{1}{2}x + 7x - 6 = 7x + \frac{1}{4}$$

$$\text{or } \frac{1}{2}x + 7x - 7x = \frac{1}{4} + 6$$

$$\text{or } \frac{x}{2} = \frac{1 + 24}{4}$$

$$\text{or } \frac{x}{2} = \frac{25}{4}$$

$$\text{or } x = \frac{25}{2}$$

Check :

$$\text{L.H.S.} = \frac{1}{2} \times \frac{25}{2} + 7 \times \frac{25}{2} - 6 = \frac{351}{4}$$

$$\text{R.H.S.} = 7 \times \frac{25}{2} + \frac{1}{4} = \frac{351}{4}$$

$\therefore$ L.H.S. = R.H.S. for $x = \frac{25}{2}$

********** END **********