



Exercise 7A

Q1

Answer :

$$3x - 5 = 0$$

$$\Rightarrow 3x = 5 \quad \left(\text{Transposing } -5 \text{ to RHS} \right)$$

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

CHECK : By substituting $x = \frac{5}{3}$ in the given equation, we get :

$$\text{LHS} = 3\left(\frac{5}{3}\right) - 5 = 5 - 5 = 0$$

$$\text{RHS} = 0$$

$$\therefore \text{LHS} = \text{RHS}$$

Hence checked.

Q2

Answer :

$$8x - 3 = 9 - 2x$$

$$\Rightarrow 8x + 2x = 9 + 3 \quad (\text{By transposition})$$

$$\Rightarrow 10x = 12$$

$$\Rightarrow x = \frac{12}{10} = \frac{6}{5}$$

CHECK : By substituting $x = \frac{6}{5}$ in the given equation, we get :

$$\text{LHS} : 8\left(\frac{6}{5}\right) - 3 = \frac{48}{5} - 3 = \frac{48-15}{5} = \frac{33}{5}$$

$$\text{RHS} : 9 - 2\left(\frac{6}{5}\right) = 9 - \frac{12}{5} = \frac{45-12}{5} = \frac{33}{5}$$

$$\therefore \text{LHS} = \text{RHS}$$

Hence checked.

Q3

Answer :

We have:

$$7 - 5x = 5 - 7x$$

$$\Rightarrow -5x + 7x = 5 - 7 \text{ [transposing } -7x \text{ to LHS and } 7 \text{ to RHS]}$$

$$\Rightarrow 2x = -2$$

$$\Rightarrow x = \frac{-2^{-1}}{2^{-1}}$$

$$\Rightarrow x = -1$$

Thus, $x = -1$ is a solution to the given equation.

CHECK: Substituting $x = -1$ in the given equation, we get:

$$\begin{aligned} \text{LHS:} &= 7 - 5x \\ &= 7 - 5 \times (-1) \\ &= 7 + 5 \\ &= 12 \end{aligned}$$

RHS:

$$\begin{aligned} &= 5 - 7x \\ &= 5 - 7 \times (-1) \\ &= 5 + 7 \\ &= 12 \end{aligned}$$

$\therefore \text{LHS} = \text{RHS}$

Hence, $x = -1$ is a solution of the given equation.

Q4

Answer :

We have:

$$3 + 2x = 1 - x$$

$$\Rightarrow 2x + x + 3 - 1 = 0 \quad (\text{By transposition})$$

$$\Rightarrow 3x + 2 = 0$$

$$\Rightarrow x = -\frac{2}{3}$$

CHECK: Substituting $x = -\frac{2}{3}$ in the given equation, we get:

$$\text{LHS: } 3+2x$$

$$= 3+2 \times \left(-\frac{2}{3}\right)$$

$$= 3 - \frac{4}{3}$$

$$= \frac{9-4}{3}$$

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

$$\text{RHS: } 1-x$$

$$= 1 - \left(-\frac{2}{3}\right)$$

$$= 1 + \frac{2}{3}$$

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

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

$$\therefore \text{LHS} = \text{RHS}$$

Hence, $x = -\frac{2}{3}$ is a solution of the given equation.

Q5

Answer :

We have:

$$2(x-2) + 3(4x-1) = 0$$

$$\Rightarrow 2x - 4 + 12x - 3 = 0$$

$$\Rightarrow 14x - 7 = 0$$

$$\Rightarrow 14x = 7 \quad (\text{By transposition})$$

$$\Rightarrow x = \frac{1}{2}$$

CHECK: Substituting $x = \frac{1}{2}$ in the given equation, we get:

$$\begin{aligned}
\text{LHS: } & 2(x-2) + 3(4x-1) \\
& = 2x - 4 + 12x - 3 \\
& = 2 \times \frac{1}{2} - 4 + 12 \times \frac{1}{2} - 3 \\
& = 1 - 4 + 6 - 3 \\
& = -7 + 7 \\
& = 0
\end{aligned}$$

$$\text{RHS: } 0$$

$$\therefore \text{LHS} = \text{RHS}$$

Hence, $x = \frac{1}{2}$ is a solution of the given equation.

Q6

Answer :

We have:

$$\begin{aligned}
& 5(2x-3) - 3(3x-7) = 5 \\
\Rightarrow & 10x - 15 - 9x + 21 = 5 \\
\Rightarrow & 10x - 9x = 5 + 15 - 21 && (\text{By transposition}) \\
\Rightarrow & x = 20 - 21 \\
\Rightarrow & x = -1
\end{aligned}$$

CHECK: Substituting $x = -1$ in the given equation, we get:

$$\begin{aligned}
\text{LHS: } & 5(2x-3) - 3(3x-7) \\
& = 10x - 15 - 9x + 21 \\
& = 10 \times (-1) - 15 - 9 \times (-1) + 21 \\
& = -10 - 15 + 9 + 21 \\
& = -25 + 30 \\
& = 5
\end{aligned}$$

RHS: 5

$\therefore \text{LHS} = \text{RHS}$

Hence, $x = -1$ is a solution of the given equation.

Q7

Answer :

We have:

$$2x - \frac{1}{3} = \frac{1}{5} - x$$

$$\Rightarrow 2x + x = \frac{1}{5} + \frac{1}{3}$$

$$\Rightarrow 3x = \frac{3 \times 1 + 5 \times 1}{15}$$

$$\Rightarrow 3x = \frac{3+5}{15}$$

$$\Rightarrow 3x = \frac{8}{15}$$

$$\Rightarrow x = \frac{8}{15 \times 3}$$

$$\Rightarrow x = \frac{8}{45}$$

CHECK: Substituting $x = \frac{8}{45}$ in the given equation, we get:

$$\begin{aligned} \text{LHS: } 2x - \frac{1}{3} &= 2 \times \frac{8}{45} - \frac{1}{3} \\ &= \frac{16}{45} - \frac{1}{3} \\ &= \frac{16 \times 1 - 15 \times 1}{45} \\ &= \frac{16-15}{45} \\ &= 1 \end{aligned}$$

$$\begin{aligned} \text{RHS: } \frac{1}{5} - x &= \frac{1}{5} - \frac{8}{45} \\ &= \frac{1 \times 9 - 1 \times 8}{45} \\ &= \frac{9-8}{45} \\ &= \frac{1}{45} \end{aligned}$$

$\therefore \text{LHS} = \text{RHS}$

Hence, $x = \frac{8}{45}$ is a solution of the given equation.

Q8

Answer :

We have:

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

$$\Rightarrow \frac{1}{2}x - \frac{1}{3}x = 5 + 3 \quad \left(\text{transposing } \frac{1}{3}x \text{ to LHS and } -3 \text{ to RHS} \right)$$

$$\Rightarrow \left(\frac{1 \times 3 - 1 \times 2}{6} \right) x = 8$$

$$\Rightarrow \left(\frac{3-2}{6} \right) x = 8$$

$$\Rightarrow \frac{1}{6}x = 8$$

$$\Rightarrow x = 8 \times 6$$

$$\Rightarrow x = 48$$

CHECK: Substituting $x=48$ in the given equation, we get:

***** END *****

