



Exercise 7A

We have:

$$0.5x + \frac{x}{3} = 0.25x + 7$$

$$\Rightarrow \frac{1}{2}x + \frac{x}{3} = \frac{x}{4} + 7$$

$$\Rightarrow \frac{x}{2} + \frac{x}{3} - \frac{x}{4} = 7$$

$$\Rightarrow \frac{6x + 4x - 3x}{12} = 7$$

$$\Rightarrow \frac{7x}{12} = 7$$

$$\Rightarrow x = 12$$

CHECK: Substituting $x = 12$ in the given equation, we get:

$$\text{LHS} = 0.5x + \frac{x}{3}$$

$$= 0.5 \times 12 + \frac{12}{3}$$

$$= \frac{1}{2} \times 12 + 4$$

$$= 6 + 4$$

$$= 10$$

$$\text{RHS} = 0.25x + 7$$

$$= 0.25 \times 12 + 7$$

$$= 3 + 7$$

$$= 10$$

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

Hence, $x = 12$ is a solution of the given equation.

Verified.

Q28

Answer :

We have:

$$0.18(5x - 4) = 0.5x + 0.8$$

$$\Rightarrow 100 \times 0.18(5x - 4) = 100(0.5x + 0.8) \quad (\text{Multiplying both sides by 100})$$

$$\Rightarrow 18(5x - 4) = 100 \times 0.5x + 100 \times 0.8$$

$$\Rightarrow 90x - 72 = 50x + 80$$

$$\Rightarrow 90x - 50x = 80 + 72$$

$$\Rightarrow 40x = 152$$

$$\Rightarrow x = \frac{152}{40}$$

$$\Rightarrow x = \frac{19}{5} = 3.8$$

CHECK: Substituting $x = 3.8$ in the given equation, we get:

$$\text{LHS} = 0.18(5x - 4)$$

$$= 0.18(5 \times 3.8 - 4)$$

$$= 0.18 \times 15$$

$$= 2.7$$

$$\text{RHS} = 0.5x + 0.8$$

$$= 0.5 \times 3.8 + 0.8$$

$$= 1.9 + 0.8$$

$$= 2.7$$

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

Hence, $x = 3.8$ is a solution of the given equation.

Verified.

Q29

Answer :

We have:

$$\Rightarrow 2.4(3 - x) - 0.6(2x - 3) = 0$$

$$\Rightarrow 10 \times 2.4(3 - x) - 10$$

$$\times 0.6(2x - 3) = 0 \quad (\text{Multiplying both sides by 10 to remove decimals})$$

$$\Rightarrow 24(3 - x) - 6(2x - 3) = 0$$

$$\Rightarrow 6[4(3 - x) - (2x - 3)] = 0$$

$$\Rightarrow 4(3 - x) - (2x - 3) = 0$$

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

$$\Rightarrow 15 - 6x = 0$$

$$\Rightarrow -6x = -15$$

$$\Rightarrow x = \frac{15}{6}$$

$$\Rightarrow x = \frac{5}{2} = 2.5$$

CHECK: Substituting $x = 2.5$ in the given equation, we get:

$$\text{LHS} = 2.4(3 - x) - 0.6(2x - 3)$$

$$= 2.4(3 - 2.5) - 0.6(2 \times 2.5 - 3)$$

$$= 2.4 \times 0.5 - 0.6 \times 2$$

$$= 1.2 - 1.2$$

$$= 0$$

$$\text{RHS} = 0$$

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

Hence, $x = \frac{19}{5}$ is a solution of the given equation.

Verified.

Q30

Answer :

We have:

$$0.5x - (0.8 - 0.2x) = 0.2 - 0.3x$$

$$\begin{aligned}
&\Rightarrow 0.5x + 0.3x - 0.8 + 0.2x = 0.2 && \text{(By transposition)} \\
&\Rightarrow (0.5 + 0.3 + 0.2)x = 0.2 + 0.8 \\
&\Rightarrow 1x = 1 \\
&\Rightarrow x = 1
\end{aligned}$$

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

$$\begin{aligned}
\text{LHS} &= 0.5x - (0.8 - 0.2x) \\
&= 0.5 \times 1 - (0.8 - 0.2 \times 1) \\
&= 0.5 - 0.8 + 0.2 \\
&= -0.1
\end{aligned}$$

$$\begin{aligned}
\text{RHS} &= 0.2 - 0.3x \\
&= 0.2 - 0.3 \times 1 \\
&= -0.1
\end{aligned}$$

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

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

Verified.

Q31

Answer :

We have:

$$\begin{aligned}
\frac{x+2}{x-2} &= \frac{7}{3} \\
&\Rightarrow (x+2) \times 3 = 7 \times (x-2) && \text{(Cross multiplication)} \\
&\Rightarrow 3x + 6 = 7x - 14 \\
&\Rightarrow 4x = 20 \\
&\Rightarrow x = \frac{20}{4} \\
&\Rightarrow x = 5
\end{aligned}$$

CHECK: Substituting $x = 5$ in the given equation, we get.

$$\begin{aligned}
\text{LHS} &= \frac{x+2}{x-2} \\
&= \frac{5+2}{5-2} \\
&= \frac{7}{3}
\end{aligned}$$

$$\text{RHS} = \frac{7}{3}$$

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

Hence, $x = 5$ is a solution of the given equation.

Verified.

Q32

Answer :

We have:

$$\begin{aligned}
\frac{2x+5}{3x+4} &= 3 \\
&\Rightarrow \frac{2x+5}{3x+4} = \frac{3}{1} \\
&\Rightarrow 1 \times (2x+5) = 3 \times (3x+4) \\
&\Rightarrow 2x+5 = 9x+12 \\
&\Rightarrow 7x = -7 \\
&\Rightarrow x = -1
\end{aligned}$$

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

$$\text{LHS : } \frac{2x+5}{3x+4}$$

$$= \frac{2 \times (-1) + 5}{3 \times (-1) + 4}$$

$$= \frac{-2+5}{-3+4}$$

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

$$\text{RHS} = 3$$

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

Hence, $x = 5$ is a solution of the given equation.

Verified.

***** END *****