Exercise 7A

Q1

Answer :

$3x - 5 = 0$

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

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

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

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

RHS $= 0$

$\therefore$ LHS $=$ RHS

Hence checked.

Q2

Answer :

$8x - 3 = 9 - 2x$

$\Rightarrow 8x + 2x = 9 + 3$ (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 :

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

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

$\therefore$ LHS $=$ RHS

Hence checked.

Q3

Answer :

We have:
$7 - 5x = 5 - 7x$

$\Rightarrow -5x + 7x = 5 - 7$ [transposing -$7x$ to LHS and 7 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:
LHS: $= 7 - 5x$
$= 7 - 5 \times (-1)$
$= 7 + 5$
$= 12$
RHS:
$= 5 - 7x$
$= 5 - 7 \times (-1)$
$= 5 + 7$
$= 12$
$\therefore$ LHS = RHS
Hence, $x = -1$ is a solution of the given equation.

Q4

Answer :

We have:
$3 + 2x = 1 - x$
$\Rightarrow 2x + x + 3 - 1 = 0$ (By transposition)
$\Rightarrow 3x + 2 = 0$
$\Rightarrow x = -\frac{2}{3}$

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

LHS: $3+2x$

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

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

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

$=\frac{5}{3}$

RHS: $1-x$

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

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

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

$=\frac{5}{3}$

$\therefore$ LHS = RHS

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

Q5

Answer :

We have:

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

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

$\Rightarrow 14x-7 = 0$

$\Rightarrow 14x = 7$ (By transposition)

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

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

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

$=-7+7$

$=0$

RHS: 0

$\therefore$ LHS$=$ RHS

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

Q6

Answer :

We have:

$5(2x-3)-3(3x-7)=5$

$\Rightarrow\ 10x-15-9x+21=5$

$\Rightarrow\ 10x-9x=5+15-21$ (By transposition)

$\Rightarrow\ x=20-21$

$\Rightarrow x=-1$

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

LHS: $5(2x-3)-3(3x-7)$

$=10x-15-9x+21$

$=10\times(-1)-15-9\times(-1)+21$

$=-10-15+9+21$

$=-25+30$

$=5$

RHS: 5

$\therefore$ LHS = RHS

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

Q7

Answer :

We have:

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

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

$\Rightarrow 3x = \frac{3\times1+5\times1}{15}$

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

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

$\Rightarrow x = \frac{8}{15\times3}$

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

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

LHS: $2x - \frac{1}{3}$

$= 2 \times \frac{8}{45} - \frac{1}{3}$

$= \frac{16}{45} - \frac{1}{3}$

$= \frac{16\times1-15\times1}{45}$

$= \frac{16-15}{45}$

$= 1$

RHS : $\frac{1}{5} - x$

$= \frac{1}{5} - \frac{8}{45}$

$= \frac{1\times9-1\times8}{45}$

$= \frac{9-8}{45}$

$= \frac{1}{45}$

$\therefore$ LHS=RHS

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

Q8

Answer :

We have:

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

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

$\Rightarrow \left(\frac{1\times3-1\times2}{6}\right)x = 8$

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

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

$\Rightarrow x = 8 \times 6$

$\Rightarrow x = 48$

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

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