Teaching learning material

Class - 7th. Subject - mathematics

Section - All. Subject teacher - Bandana kumari

Question 1:

Solution:

$3x - 5 = 0$

$\therefore 3x = 5$ (Transposing - 5 to RHS)

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

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

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

$RHS = 0$

$\therefore LHS = RHS$

Question 2:

Solution:

$8x - 3 = 9 - 2x$

$\therefore 8x + 2x = 9 + 3$ (By transposition)

$\therefore 10x = 12$

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

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

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

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

$\therefore LHS = RHS$

Question 3:

Solution:

$7 - 5x = 5 - 7x$

$\therefore 5x - 7 = 5 - 7$ (By transposition)

$\Rightarrow 2x = -2$

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

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

CHECK : By substituting x =-1 in the given equation, we get :

$LHS : 7 - 5x = 7 - 5 \times (-1) = 7 - 5 = 12$

RHS: 5 7x 5 7 - (1) 5 7 12

$\therefore$ LHS RHS

Question 4:

Solution:

3 | 2x 1 x

$\therefore 2x + x + 3 = 1 = 0$

$\Rightarrow 3x+2 = 0$

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

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

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

LHS : $3+2x = 3 = 2\left(-\frac{2}{3}\right) = 3 = \frac{4}{3} = \frac{9-4}{3} = \frac{5}{3}$

RHS:$1 = x = 1 = \left(-\frac{2}{3}\right) = 1 + \left(\frac{2}{3}\right) = \frac{3+2}{3} = \frac{5}{3}$

$\therefore$ LHS = RHS

Question 5:
Solution:
We have :

$2x = 2 + 3 = 4x = 1 = 0$

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

$\Rightarrow -14x-7 = 0$

$-14x=7$ (By transposition)

$\Rightarrow x = \frac{7}{14} = \frac{1}{2}$

Thus, $x = \frac{1}{2}$ is a solution to the given equation

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

LHS : $2x = 4 = 12x = 3 = 2\left(\frac{1}{2}\right) + 4 + 12\left(\frac{1}{2}\right) = 3$

$=1-4+6-3$
$= -7 + 7$
$=0$
RHS: 0
$\therefore$ LHS = RHS

Question 6:
Solution:
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

Question 7:

Solution:

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

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

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

$\nearrow x \quad \frac{8}{15 \times 3} \quad \frac{8}{45}$

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

LHS : $2x - \frac{1}{3} \quad 2\nearrow\frac{8}{45} \quad \frac{1}{3} \quad \frac{16}{45} \quad \frac{1}{3} \quad \frac{16-15}{45} \quad \frac{1}{45}$

RHS: $-\frac{1}{5} \cdot x - \frac{1}{5} - \frac{8}{45} - \frac{9}{45} \quad \frac{8}{45} - \frac{1}{45}$

$\therefore$ LHS = RHS

Question 8:

Solution:

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

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

$: \frac{3 \quad 2x}{6} = 8$

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

$x = 8 \times 6 = 48$

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

LHS : $\frac{1}{2}x - 3 \quad \frac{1}{2} \times 48 \quad 3 \quad 24 \quad 3 \quad 21$

RHS: $= 5 + \frac{1}{3}x = \frac{1}{5} - \frac{1}{3} \times 48 = 5 + 16 = 21$

$\therefore$ LHS = RHS