Linear equations in one variable Ex 8.3 Q11

Answer :

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

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

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

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

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

Multiplying both sides by 3, we get

$$\Rightarrow \left(\frac{3x+1}{3}\right) \times 3 = 1 \times 3$$

=> 3x + 1 = 3

Subtracting 1 from both sides, we get

=> 3x + 1 − 1 = 3 − 1

=> 3x = 2

Dividing both sides by 3, we get

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

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

Verification:

Substituting $x = \frac{2}{3}$ in LHS, we get

$$= \frac{5\left(\frac{2}{3}\right)-1}{3} - \frac{2\left(\frac{2}{3}\right)-2}{3}$$

$$= \frac{\frac{10}{3}-1}{3} - \frac{\frac{4}{3}-2}{3} = \frac{\frac{10-3}{3}}{3} - \frac{\frac{4-6}{3}}{3} = \frac{7}{3\times3} - \left(\frac{-2}{3\times3}\right) = \frac{7}{9} + \frac{2}{9} = \frac{9}{9} = 1 = RHS$$

LHS = RHS

Hence, verified.

Linear equations in one variable Ex 8.3 Q12

Answer :

$0.6x + \frac{4}{5} = 0.28x + 1.16$

Transposing 0.28x to LHS and 4/5 to RHS, we get

=> 0.6x − 0.28x = 1.16 − $\frac{4}{5}$

=> 0.32x = 1.16 − 0.8

=> 0.32x = 0.36

Dividing both sides by 0.32, we get

=> $\frac{0.32x}{0.32} = \frac{0.36}{0.32}$

=> x = $\frac{9}{8}$

Verification:

Substituting x = $\frac{9}{8}$ on both sides, we get

$0.6\left(\frac{9}{8}\right) + \frac{4}{5} = 0.28\left(\frac{9}{8}\right) + 1.16$

$\frac{5.4}{8} + \frac{4}{5} = \frac{2.52}{8} + 1.16$

$0.675 + 0.8 = 0.315 + 1.16$

$1.475 = 1.475$

LHS = RHS

Hence, verified.

Linear equations in one variable Ex 8.3 Q13

Answer :

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

$\Rightarrow \frac{05}{10}x + \frac{x}{3} = \frac{25x}{100} + 7$

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

Transposing x/4 to LHS, we get

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

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

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

Multiplying both sides by 12, we get

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

=> 7x = 84

Dividing both sides by 7, we get

$\Rightarrow \frac{7x}{7} = \frac{84}{7}$

=> x = 12

Verification:

Substituting x = 12 on both sides, we get

$0.5(12) + \frac{12}{3} = 0.25(12) + 7$

6 + 4 = 3 + 7

10 = 10

LHS =RHS

Hence, verified.

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