Linear equations in one variable Ex 8.2 Q21

Answer :

$5(2 - 3x) - 17(2x - 5) = 16$

On expanding the brackets, we get

$\Rightarrow (5 \times 2) - (5 \times 3x) - (17 \times 2x) + (17 \times 5) = 16$

$\Rightarrow 10 - 15x - 34x + 85 = 16$

$\Rightarrow 10 + 85 - 34x - 15x = 16$

$\Rightarrow 95 - 49x = 16$

Subtracting 95 from both sides, we get

$\Rightarrow -49x + 95 - 95 = 16 - 95$

$\Rightarrow -49x = -79$

Dividing both sides by -49, we get

$\Rightarrow \dfrac{-49x}{-49} = \dfrac{-79}{-49}$

$\Rightarrow x = \dfrac{79}{49}$

Verification:

Substituting $x = \dfrac{79}{49}$ in LHS, we get

$= 5(2 - 3 \times \frac{79}{49}) - 17(2 \times \frac{79}{49} - 5)$

$= (5 \times 2) - (5 \times 3 \times \frac{79}{49}) - (17 \times 2 \times \frac{79}{49}) + (17 \times 5)$

$= 10 - \dfrac{1185}{49} - \dfrac{2686}{49} + 85$

$= \dfrac{490 - 1185 - 2686 + 4165}{49}$

$= \dfrac{784}{49}$

$= 16$

$= RHS$

So, LHS = RHS

Hence, verified.

Linear equations in one variable Ex 8.2 Q22

Answer :

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

Adding 2 to both sides, we get

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

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

Multiplying both sides by 5, we get

$$\Rightarrow \left(\frac{x-3}{5}\right) \times 5 = 1 \times 5$$

$$\Rightarrow x - 3 = 5$$

Adding 3 to both sides, we get

$$\Rightarrow x - 3 + 3 = 5 + 3$$

$$\Rightarrow x = 8$$

Verification:

Substituting $x = 8$ in LHS, we get

$$= \frac{8-3}{5} - 2$$

$$= \frac{5}{5} - 2$$

$$= 1 - 2$$

$$= -1$$

$$= RHS$$

LHS = RHS

Hence, verified.

Linear equations in one variable Ex 8.2 Q23

Answer :

$5(x - 2) + 3(x + 1) = 25$

On expanding the brackets, we get

$\Rightarrow (5 \times x) - (5 \times 2) + (3 \times x) + (3 \times 1) = 25$

$\Rightarrow 5x - 10 + 3x + 3 = 25$

$\Rightarrow 5x + 3x - 10 + 3 = 25$

$\Rightarrow 8x - 7 = 25$

Adding 7 to both sides, we get

$\Rightarrow 8x - 7 + 7 = 25 + 7$

$\Rightarrow 8x = 32$

Dividing both sides by 8, we get

$\Rightarrow \frac{8x}{8} = \frac{32}{8}$

$\Rightarrow x = 4$

Verification:

Substituting $x = 4$ in LHS, we get

$= 5(4 - 2) + 3(4 + 1)$

$= 5(2) + 3(5)$

$= 10 + 15$

$= 25$

$= RHS$

LHS = RHS

Hence, verified.

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