

Linear equations in one variable Ex 8.2 Q21

## Answer:

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

On expanding the brackets, we get

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

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

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

Verification:

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

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

$$= 5(2 - 3 \times \frac{13}{49}) - 17(2 \times \frac{13}{49} - 5)$$

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

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

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

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

$$=10-\frac{1185}{40}-\frac{2686}{40}+85$$

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

$$=\frac{784}{49}$$

$$= 16$$

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

$$=1-2$$

$$=RHS$$

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

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

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

$$= 10 + 15$$

$$= 25$$

$$=RHS$$

Hence, verified.

\*\*\*\*\*\* END \*\*\*\*\*\*