



Linear equations in one variable Ex 8.2 Q15

**Answer :**

$$13 - 2x = 0$$

Subtracting 13 from both sides, we get

$$\Rightarrow 13 - 2x - 13 = 0 - 13$$

$$\Rightarrow -2x = -13$$

Multiplying both sides by -1, we get

$$\Rightarrow -2x \times (-1) = -13 \times (-1)$$

$$\Rightarrow 2x = 13$$

Dividing both sides by 2, we get

$$\Rightarrow 2x2 = 13 \times 2$$

$$\Rightarrow x = 16$$

Verification:

Substituting  $x = 16$  in LHS, we get

$$\text{LHS} = 13 - 2 \times 16 = 13 - 13 = 0, \text{ and } \text{RHS} = 0$$

$$\text{LHS} = \text{RHS}$$

Hence, verified.

Linear equations in one variable Ex 8.2 Q16

**Answer :**

$$3(x + 6) = 24$$

Dividing both sides by 3, we get

$$\Rightarrow \frac{3(x + 6)}{3} = \frac{24}{3}$$

$$\Rightarrow (x + 6) = 8$$

Subtracting 6 from both sides, we get

$$\Rightarrow x + 6 - 6 = 8 - 6$$

$$\Rightarrow x = 2$$

Verification:

Substituting  $x = 2$  in LHS, we get

$$\text{LHS} = 3(x + 6) = 3(2 + 6) = 3 \times 8 = 24, \text{ and } \text{RHS} = 24$$

$$\text{LHS} = \text{RHS}$$

Hence, verified.

Linear equations in one variable Ex 8.2 Q17

**Answer :**

$$3(x + 2) - 2(x - 1) = 7$$

On expanding the brackets, we get

$$\Rightarrow (3 \times x) + (3 \times 2) - (2 \times x) + (2 \times 1) = 7$$

$$\Rightarrow 3x + 6 - 2x + 2 = 7$$

$$\Rightarrow 3x - 2x + 6 + 2 = 7$$

$$\Rightarrow x + 8 = 7$$

Subtracting 8 from both sides, we get

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

$$\Rightarrow x = -1$$

Verification:

Substituting  $x = -1$  in LHS, we get

$$\text{LHS} = 3(x + 2) - 2(x - 1), \text{ and RHS} = 7$$

$$\text{LHS} = 3(-1 + 2) - 2(-1 - 1) = (3 \times 1) - (2 \times -2) = 3 + 4 = 7, \text{ and RHS} = 7$$

$$\text{LHS} = \text{RHS}$$

Hence, verified.

Linear equations in one variable Ex 8.2 Q18

**Answer :**

$$8(2x - 5) - 6(3x - 7) = 1$$

On expanding the brackets, we get

$$\Rightarrow (8 \times 2x) - (8 \times 5) - (6 \times 3x) + (-6) \times (-7) = 1$$

$$\Rightarrow 16x - 40 - 18x + 42 = 1$$

$$\Rightarrow 16x - 18x + 42 - 40 = 1$$

$$\Rightarrow -2x + 2 = 1$$

Subtracting 2 from both sides, we get

$$\Rightarrow -2x + 2 - 2 = 1 - 2$$

$$\Rightarrow -2x = -1$$

Multiplying both sides by  $-1$ , we get

$$\Rightarrow -2x \times (-1) = -1 \times (-1)$$

$$\Rightarrow 2x = 1$$

Dividing both sides by 2, we get

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

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

Verification:

Substituting  $x = \frac{1}{2}$  in LHS, we get

$$= 8(2 \times \frac{1}{2} - 5) - 6(3 \times \frac{1}{2} - 7)$$

$$= 8(1 - 5) - 6(\frac{3}{2} - 7)$$

Linear equations in one variable Ex 8.2 Q19

$$\begin{aligned}
 &= 8 \times (-4) - (6 \times \frac{3}{2}) + (6 \times 7) \\
 &= -32 - 9 + 42 = -41 + 42 = 1 = \text{RHS} \\
 \text{LHS} &= \text{RHS} \\
 \text{Hence, verified.}
 \end{aligned}$$

Linear equations in one variable Ex 8.2 Q20

**Answer :**

$$\begin{aligned}
 &6(1 - 4x) + 7(2 + 5x) = 53 \\
 &\text{On expanding the brackets, we get} \\
 &\Rightarrow (6 \times 1) - (6 \times 4x) + (7 \times 2) + (7 \times 5x) = 53 \\
 &\Rightarrow 6 - 24x + 14 + 35x = 53 \\
 &\Rightarrow 6 + 14 + 35x - 24x = 53 \\
 &\Rightarrow 20 + 11x = 53 \\
 &\text{Subtracting 20 from both sides, we get} \\
 &\Rightarrow 20 + 11x - 20 = 53 - 20 \\
 &\Rightarrow 11x = 33 \\
 &\Rightarrow \text{Dividing both sides by 11, we get} \\
 &\Rightarrow \frac{11x}{11} = \frac{33}{11} \\
 &\Rightarrow x = 3
 \end{aligned}$$

Verification:

$$\begin{aligned}
 &\text{Substituting } x = 3 \text{ in LHS, we get} \\
 &= 6(1 - 4 \times 3) + 7(2 + 5 \times 3) \\
 &= 6(1 - 12) + 7(2 + 15) \\
 &= 6(-11) + 7(17) \\
 &= -66 + 119 = 53 = \text{RHS} \\
 \text{LHS} &= \text{RHS} \\
 \text{Hence, verified.}
 \end{aligned}$$

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