



Exercise 9B

Q17

Answer :

$$6(1 - 4x) + 7(2 + 5x) = 53$$

$$\text{or, } 6 \times 1 - 6 \times 4x + 7 \times 2 + 7 \times 5x = 53 \quad [\text{On expanding the brackets}]$$

$$\text{or, } 6 - 24x + 14 + 35x = 53$$

$$\text{or, } 11x + 20 = 53$$

$$\text{or, } 11x + 20 - 20 = 53 - 20 \quad [\text{Subtracting 20 from both the sides}]$$

$$\text{or, } 11x = 33$$

$$\text{or, } \frac{11x}{11} = \frac{33}{11} \quad [\text{Dividing both the sides by 11}]$$

$$\text{or, } x = 3$$

Verification:

Substituting $x = 3$ in the L.H.S.:

$$6(1 - 4 \times 3) + 7(2 + 5 \times 3)$$

$$\Rightarrow 6(1 - 12) + 7(2 + 15)$$

$$\Rightarrow 6(-11) + 7(17)$$

$$\Rightarrow -66 + 119 = 53 = R.H.S.$$

L.H.S. = R.H.S.

Hence, verified.

Q18

Answer :

$$16(3x - 5) - 10(4x - 8) = 40$$

$$\text{or, } 16 \times 3x - 16 \times 5 - 10 \times 4x - 10 \times (-8) = 40 \quad [\text{On expanding the brackets}]$$

$$\text{or, } 48x - 80 - 40x + 80 = 40$$

$$\text{or, } 8x = 40$$

$$\text{or, } \frac{8x}{8} = \frac{40}{8} \quad [\text{Dividing both the sides by 8}]$$

$$\text{or, } x = 5$$

Verification:

Substituting $x = 5$ in the L.H.S.:

$$16(3 \times 5 - 5) - 10(4 \times 5 - 8)$$

$$\Rightarrow 16(15 - 5) - 10(20 - 8)$$

$$\Rightarrow 16(10) - 10(12)$$

$$\Rightarrow 160 - 120 = 40 = R.H.S.$$

L.H.S. = R.H.S.

Hence, verified.

Q19

Answer :

$$3(x + 6) + 2(x + 3) = 64$$

$$\Rightarrow 3 \times x + 3 \times 6 + 2 \times x + 2 \times 3 = 64 \quad [\text{On expanding the brackets}]$$

$$\Rightarrow 3x + 18 + 2x + 6 = 64$$

$$\Rightarrow 5x + 24 = 64$$

$$\Rightarrow 5x + 24 - 24 = 64 - 24 \quad [\text{Subtracting 24 from both the sides}]$$

$$\Rightarrow 5x = 40$$

$$\Rightarrow \frac{5x}{5} = \frac{40}{5} \quad [\text{Dividing both the sides by 5}]$$

$$\Rightarrow x = 8$$

Verification:

Substituting $x = 8$ in the L.H.S.:

$$3(8 + 6) + 2(8 + 3)$$

$$3(14) + 2(11)$$

$$42 + 22 = 64 = \text{R.H.S.}$$

L.H.S. = R.H.S.

Hence, verified.

Q20

Answer :

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

$$\text{or, } 3 \times 2 + 3 \times (-5x) - 2 \times 1 - 2 \times (-6x) = 1 \quad [\text{On expanding the brackets}]$$

$$\text{or, } 6 - 15x - 2 + 12x = 1$$

$$\text{or, } 4 - 3x = 1$$

$$\text{or, } 3 = 3x$$

$$\text{or, } x = 1$$

Verification:

Substituting $x = 1$ in the L.H.S.:

$$3(2 - 5 \times 1) - 2(1 - 6 \times 1)$$

$$\Rightarrow 3(2 - 5) - 2(1 - 6)$$

$$\Rightarrow 3(-3) - 2(-5)$$

$$\Rightarrow -9 + 10 = 1 = \text{R.H.S.}$$

L.H.S. = R.H.S.

Hence, verified.

Q21

Answer :

$$\frac{n}{4} - 5 = \frac{n}{6} + \frac{1}{2}$$

$$\text{or, } \frac{n}{4} - \frac{n}{6} = \frac{1}{2} + 5 \quad [\text{Transposing } n/6 \text{ to the L.H.S. and 5 to the R.H.S.}]$$

$$\text{or, } \frac{3n - 2n}{12} = \frac{1 + 10}{2}$$

$$\text{or, } \frac{n}{12} = \frac{11}{2}$$

$$\text{or, } \frac{n}{12} \times 12 = \frac{11}{2} \times 12 \quad [\text{Dividing both the sides by 12}]$$

$$\text{or, } n = 66$$

Verification:

Substituting $n = 66$ on both the sides:

L.H.S.:

$$\frac{66}{4} - 5 = \frac{33}{2} - 5 = \frac{33 - 10}{2} = \frac{23}{2} = \frac{23}{2} \quad \text{R.H.S.: } \frac{66}{6} + \frac{1}{2} = 11 + \frac{1}{2} = \frac{22 + 1}{2} = \frac{23}{2}$$

L.H.S. = R.H.S.

Hence, verified.

Q22

Answer :

$$\frac{2m}{3} + 8 = \frac{m}{2} - 1$$

$$\text{or, } \frac{2m}{3} - \frac{m}{2} = -1 - 8 \quad [\text{Transposing } m/2 \text{ to the L.H.S. and 8 to the R.H.S.}]$$

$$\text{or, } \frac{4m - 3m}{6} = -9$$

$$\text{or, } \frac{m}{6} = -9$$

$$\text{or, } \frac{m}{6} \times 6 = -9 \times 6 \quad [\text{Multiplying both the sides by 6}]$$

$$\text{or, } m = -54$$

Verification:

Substituting $x = -54$ on both the sides:

L.H.S.:

$$\frac{2(-54)}{3} + 8 = \frac{-54}{2} - 1$$

$$= \frac{-108}{3} + 8$$

$$= -36 + 8$$

$$= -28$$

R.H.S.:

$$\frac{-54}{2} - 1$$

$$= -27 - 1$$

$$= -28$$

L.H.S. = R.H.S.

Hence, verified.

Q23

Answer :

***** END *****