

Exercises – 7 A

Q. 1

Answer :

$$3x - 5 = 0$$

$$\Rightarrow 3x = 5 \quad \left(\text{Transposing } -5 \text{ to RHS} \right)$$

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

CHECK : By substituting $x = \frac{5}{3}$ in the given equation, we get :

$$\text{LHS} = 3\left(\frac{5}{3}\right) - 5 = 5 - 5 = 0$$

$$\text{RHS} = 0$$

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

Hence checked.

Q. 2

Answer :

$$8x - 3 = 9 - 2x$$

$$\Rightarrow 8x + 2x = 9 + 3 \quad (\text{By transposition})$$

$$\Rightarrow 10x = 12$$

$$\Rightarrow x = \frac{12}{10} = \frac{6}{5}$$

CHECK : By substituting $x = \frac{6}{5}$ in the given equation, we get :

$$\text{LHS} : 8\left(\frac{6}{5}\right) - 3 = \frac{48}{5} - 3 = \frac{48-15}{5} = \frac{33}{5}$$

$$\text{RHS} : 9 - 2\left(\frac{6}{5}\right) = 9 - \frac{12}{5} = \frac{45-12}{5} = \frac{33}{5}$$

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

Hence checked.

Q. 3

Answer :

We have:

$$7 - 5x = 5 - 7x$$

$$\Rightarrow -5x + 7x = 5 - 7 \quad [\text{transposing } -7x \text{ to LHS and } 7 \text{ to RHS}]$$

$$\Rightarrow 2x = -2$$

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

$$\Rightarrow x = -1$$

Thus, $x = -1$ is a solution to the given equation.

CHECK: Substituting $x = -1$ in the given equation, we get:

$$\text{LHS} = 7 - 5x$$

$$= 7 - 5 \times (-1)$$

$$= 7 + 5$$

$$= 12$$

$$\text{RHS:}$$

$$= 5 - 7x$$

$$= 5 - 7 \times (-1)$$

$$= 5 + 7$$

$$= 12$$

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

Hence, $x = -1$ is a solution of the given equation.

Q. 4

Answer :

We have:

$$3 + 2x = 1 - x$$

$$\Rightarrow 2x + x + 3 - 1 = 0 \quad (\text{By transposition})$$

$$\Rightarrow 3x + 2 = 0$$

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

CHECK: Substituting $x = -\frac{2}{3}$ in the given equation, we get:

$$\text{LHS: } 3 + 2x$$

$$= 3 + 2 \times \left(-\frac{2}{3}\right)$$

$$= 3 - \frac{4}{3}$$

$$= \frac{9-4}{3}$$

$$= \frac{5}{3}$$

$$\text{RHS: } 1 - x$$

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

$$= 1 + \frac{2}{3}$$

$$= \frac{3+2}{3}$$

$$= \frac{5}{3}$$

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

Hence, $x = -\frac{2}{3}$ is a solution of the given equation.

Q. 5

Answer :

We have:

$$2(x - 2) + 3(4x - 1) = 0$$

$$\Rightarrow 2x - 4 + 12x - 3 = 0$$

$$\Rightarrow 14x - 7 = 0$$

$$\Rightarrow 14x = 7$$

(By transposition)

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

CHECK: Substituting $x = \frac{1}{2}$ in the given equation, we get:

$$\text{LHS: } 2(x - 2) + 3(4x - 1)$$

$$= 2x - 4 + 12x - 3$$

$$= 2 \times \frac{1}{2} - 4 + 12 \times \frac{1}{2} - 3$$

$$= 1 - 4 + 6 - 3$$

$$= -7 + 7$$

$$= 0$$

$$\text{RHS: } 0$$

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

Hence, $x = \frac{1}{2}$ is a solution of the given equation.

Q. 6

Answer :

We have:

$$5(2x - 3) - 3(3x - 7) = 5$$

$$\Rightarrow 10x - 15 - 9x + 21 = 5$$

$$\Rightarrow 10x - 9x = 5 + 15 - 21$$

(By transposition)

$$\Rightarrow x = 20 - 21$$

$$\Rightarrow x = -1$$

CHECK: Substituting $x = -1$ in the given equation, we get:

$$\text{LHS: } 5(2x - 3) - 3(3x - 7)$$

$$= 10x - 15 - 9x + 21$$

$$= 10 \times (-1) - 15 - 9 \times (-1) + 21$$

$$= -10 - 15 + 9 + 21$$

$$= -25 + 30$$

$$= 5$$

$$\text{RHS: } 5$$

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

Hence, $x = -1$ is a solution of the given equation.

Q. 7

Answer :

We have:

$$\begin{aligned} 2x - \frac{1}{3} &= \frac{1}{5} - x \\ \Rightarrow 2x + x &= \frac{1}{5} + \frac{1}{3} \\ \Rightarrow 3x &= \frac{3 \times 1 + 5 \times 1}{15} \\ \Rightarrow 3x &= \frac{3+5}{15} \\ \Rightarrow 3x &= \frac{8}{15} \\ \Rightarrow x &= \frac{8}{15 \times 3} \\ \Rightarrow x &= \frac{8}{45} \end{aligned}$$

CHECK: Substituting $x = \frac{8}{45}$ in the given equation, we get:

$$\begin{aligned} \text{LHS: } 2x - \frac{1}{3} &= 2 \times \frac{8}{45} - \frac{1}{3} \\ &= \frac{16}{45} - \frac{1}{3} \\ &= \frac{16 \times 1 - 15 \times 1}{45} \\ &= \frac{16-15}{45} \\ &= \frac{1}{45} \end{aligned}$$

$$\begin{aligned} \text{RHS: } \frac{1}{5} - x &= \frac{1}{5} - \frac{8}{45} \\ &= \frac{1 \times 9 - 1 \times 8}{45} \\ &= \frac{9-8}{45} \\ &= \frac{1}{45} \end{aligned}$$

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

Hence, $x = \frac{8}{45}$ is a solution of the given equation.

Q. 8

Answer :

We have:

$$\begin{aligned} \frac{1}{2}x - 3 &= 5 + \frac{1}{3}x \\ \Rightarrow \frac{1}{2}x - \frac{1}{3}x &= 5 + 3 \quad \left(\text{transposing } \frac{1}{3}x \text{ to LHS and } -3 \text{ to RHS} \right) \\ \Rightarrow \left(\frac{1 \times 3 - 1 \times 2}{6} \right)x &= 8 \\ \Rightarrow \left(\frac{3-2}{6} \right)x &= 8 \\ \Rightarrow \frac{1}{6}x &= 8 \\ \Rightarrow x &= 8 \times 6 \\ \Rightarrow x &= 48 \end{aligned}$$

CHECK: Substituting $x = 48$ in the given equation, we get:

$$\begin{aligned} \text{LHS: } \frac{1}{2}x - 3 &= \frac{1}{2} \times 48 - 3 \\ &= 24 - 3 \\ &= 21 \end{aligned}$$

$$\begin{aligned} \text{RHS: } 5 + \frac{1}{3}x &= 5 + \frac{1}{3} \times 48 \\ &= 5 + 16 \\ &= 21 \end{aligned}$$

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

Hence, $x = 48$ is a solution of the given equation.

Q. 9

Answer :

$$\begin{aligned} \frac{x}{2} + \frac{x}{4} &= \frac{1}{8} \\ \Rightarrow \frac{x \times 2 + x \times 1}{4} &= \frac{1}{8} \\ \Rightarrow \frac{2x + x}{4} &= \frac{1}{8} \\ \Rightarrow \frac{3x}{4} &= \frac{1}{8} \\ \Rightarrow 3x &= \frac{1}{8} \times 4^1 \\ \Rightarrow 3x &= \frac{1}{2} \\ \Rightarrow x &= \frac{1}{6} \end{aligned}$$

CHECK: Substituting $x = \frac{1}{6}$ in the given equation, we get:

$$\begin{aligned} \text{LHS: } \frac{x}{2} + \frac{x}{4} &= \frac{x \times 2 + x \times 1}{4} \\ &= \frac{2x + x}{4} \\ &= \frac{3x}{4} \\ &= \frac{3}{4} \times \frac{1}{6} \\ &= \frac{1}{8} \end{aligned}$$

$$\text{RHS: } \frac{1}{8}$$

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

Hence, $x = \frac{1}{3}$ is a solution of the given equation.

Q. 10

Answer :

We have:

$$3x + 2(x + 2) = 20 - (2x - 5)$$

$$\Rightarrow 3x + 2x + 4 = 20 - 2x + 5$$

$$\Rightarrow 3x + 2x + 2x = 20 + 5 - 4 \quad (\text{Transposing } -2x \text{ to LHS and } 4 \text{ to RHS})$$

$$\Rightarrow 7x = 21$$

$$\Rightarrow x = \frac{21}{7}$$

$$\Rightarrow x = 3$$

CHECK: Substituting $x=3$ in the given equation, we get:

$$\text{LHS} = 3x + 2(x + 2)$$

$$= 3x + 2x + 4$$

$$= 5x + 4$$

$$= 5 \times 3 + 4$$

$$= 15 + 4$$

$$= 19$$

$$\text{RHS} = 20 - (2x - 5)$$

$$= 20 - 2x + 5$$

$$= 25 - 2 \times 3$$

$$= 25 - 6$$

$$= 19$$

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

Hence, $x=3$ is a solution of the given equation.

Q. 11

Answer :

We have:

$$13(y - 4) - 3(y - 9) - 5(y + 4) = 0$$

$$\Rightarrow 13y - 52 - 3y + 27 - 5y - 20 = 0$$

$$\Rightarrow 13y - 3y - 5y = 52 + 20 - 27 \quad (\text{Transposing } -52, -20 \text{ and } 27 \text{ to RHS})$$

$$\Rightarrow 5y = 45$$

$$\Rightarrow y = \frac{45}{5}$$

$$\Rightarrow y = 9$$

CHECK: Substituting $x=9$ in the given equation, we get:

$$\text{LHS} = 13(y - 4) - 3(y - 9) - 5(y + 4)$$

$$= 13y - 52 - 3y + 27 - 5y - 20$$

$$= 13y - 3y - 5y - 52 + 27 - 20$$

$$= 5y - 45$$

$$= 5 \times 9 - 45$$

$$= 45 - 45$$

$$= 0$$

$$\text{RHS} = 0$$

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

Hence, $x=9$ is a solution of the given equation.

Q12

Answer :

We have,

$$\frac{2m+5}{3} = 3m - 10$$

$$\Rightarrow 2m + 5 = 3(3m - 10)$$

$$\Rightarrow 2m + 5 = 9m - 30$$

$$\Rightarrow 2m - 9m = -30 - 5 \quad (\text{Transposing } 9m \text{ to LHS and } 5 \text{ to RHS})$$

$$\Rightarrow -7m = -35$$

$$\Rightarrow m = \frac{-35}{-7}$$

$$\Rightarrow m = 5$$

CHECK: Substituting $m = 5$ in the given equation, we get:

$$\text{LHS} = \frac{2m+5}{3}$$

$$= \frac{2 \times 5 + 5}{3}$$

$$= \frac{10 + 5}{3}$$

$$= \frac{15}{3}$$

$$= 5$$

$$\begin{aligned}\text{RHS} &= 3m - 10 \\ &= 3 \times 5 - 10 \\ &= 15 - 10 \\ &= 5\end{aligned}$$

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

Hence, $x=5$ is a solution of the given equation.

Answer :

We have:

$$\begin{aligned}6(3x+2) - 5(6x-1) &= 3(x-8) - 5(7x-6) + 9x \\ \Rightarrow 18x+12 - 30x+5 &= 3x-24 - 35x+30 + 9x \\ \Rightarrow 18x-30x-3x+35x-9x &= -24+30-12 \\ -5 \quad (\text{Transposing } 3x, 9x \text{ and } -35x \text{ to LHS and } 12 \text{ and } 5 \text{ to RHS}) \\ \Rightarrow 53x-42x &= 30-41 \\ \Rightarrow 11x &= -11 \\ \Rightarrow x &= \frac{-11}{11} \\ \Rightarrow x &= -1\end{aligned}$$

CHECK: Substituting $x = -1$ in the given equation, we get:

$$\begin{aligned}\text{LHS} &= 6(3x+2) - 5(6x-1) \\ &= 18x+12 - 30x+5 \\ &= -12x+17 \\ &= -12 \times (-1) + 17 \\ &= 12+17 \\ &= 29 \\ \text{RHS} &= 3(x-8) - 5(7x-6) + 9x \\ &= 3x-24 - 35x+30 + 9x \\ &= 12x-35x-24+30 \\ &= -23x+6 \\ &= -23 \times (-1) + 6 \\ &= 23+6 \\ &= 29\end{aligned}$$

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

Hence, $x = -1$ is a solution of the given equation.

Answer :

We have:

$$\begin{aligned}t - (2t+5) - 5(1-2t) &= 2(3+4t) - 3(t-4) \\ \Rightarrow t - 2t - 5 - 5 + 10t &= 6+8t - 3t + 12 \\ \Rightarrow t - 2t + 10t - 8t + 3t &= 6 + 12 + 5 + 5 \quad (\text{By transposition}) \\ \Rightarrow 14t - 10t &= 28 \\ \Rightarrow 4t &= 28 \\ \Rightarrow x &= \frac{28}{4} \\ \Rightarrow x &= 7\end{aligned}$$

CHECK: Substituting $x=7$ in the given equation, we get:

$$\begin{aligned}\text{LHS} &= t - (2t+5) - 5(1-2t) \\ &= t - 2t - 5 - 5 + 10t \\ &= 11t - 2t - 10 \\ &= 9t - 10 \\ &= 9 \times 7 - 10 \\ &= 63 - 10 \\ &= 53 \\ \text{RHS} &= 2(3+4t) - 3(t-4) \\ &= 6+8t - 3t + 12 \\ &= 5t + 18 \\ &= 5 \times 7 + 18 \\ &= 35 + 18 \\ &= 53 \\ \therefore \text{LHS} &= \text{RHS}\end{aligned}$$

Hence, $x=7$ is a solution of the given equation.

Q15

Answer :

We have:

$$\frac{2}{3}x = \frac{3}{8}x + \frac{7}{12}$$

$$\Rightarrow \frac{2}{3}x - \frac{3}{8}x = \frac{7}{12} \quad \left(\text{Transposing } \frac{3}{8}x \text{ to LHS} \right)$$

$$\Rightarrow \left(\frac{2 \times 8 - 3 \times 3}{24} \right) x = \frac{7}{12}$$

$$\Rightarrow \left(\frac{16-9}{24} \right) x = \frac{7}{12}$$

$$\Rightarrow \frac{7}{24}x = \frac{7}{12}$$

$$\Rightarrow x = \frac{7}{24} \times \frac{24}{7}$$

$$\Rightarrow x = 2$$

CHECK: Substituting $x=2$ in the given equation, we get:

$$\begin{aligned} \text{LHS} &= \frac{2}{3}x \\ &= \frac{2}{3} \times 2 \\ &= \frac{4}{3} \end{aligned}$$

$$\begin{aligned} \text{RHS} &= \frac{3}{8}x + \frac{7}{12} \\ &= \frac{3}{8} \times 2 + \frac{7}{12} \\ &= \frac{6}{8} + \frac{7}{12} \\ &= \frac{6 \times 3 + 7 \times 2}{24} \\ &= \frac{18+14}{24} \\ &= \frac{32}{24} \\ &= \frac{4}{3} \end{aligned}$$

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

Hence, $x=2$ is a solution of the given equation.

Exercises – 7 B

Q. 1

Answer :

Let the number be x .

Then, we have :

$$\Rightarrow 2x - 7 = 45$$

$$\Rightarrow 2x = 45 + 7$$

$$\Rightarrow x = \frac{45+7}{2}$$

$$\Rightarrow x = \frac{52}{2}$$

$$\Rightarrow x = 26$$

$\therefore$ The required number is 26.

Q2

Answer :

Let the number be x .

Then, we have:

$$\Rightarrow 3x + 5 = 44$$

$$\Rightarrow 3x = 44 - 5$$

$$\Rightarrow x = \frac{44-5}{3}$$

$$\Rightarrow x = \frac{39}{3}$$

$$\Rightarrow x = 13$$

$\therefore$ The required number is 13

Q. 3

Answer :

Let the number be x .

Then, we have:

$$\Rightarrow 2x + 4 = \frac{26}{5}$$

$$\Rightarrow 2x = \frac{26}{5} - 4$$

$$\Rightarrow 2x = \frac{26-20}{5}$$

$$\Rightarrow x = \frac{6}{2}$$

$$\Rightarrow x = 3$$

Q. 4

Answer :

Let the required number be x .

Then, we have:

$$\Rightarrow x + \frac{x}{2} = 72$$

$$\Rightarrow \frac{2x+x}{2} = 72$$

$$\Rightarrow \frac{3x}{2} = 72$$

$$\Rightarrow 3x = 72 \times 2$$

$$\Rightarrow x = \frac{72 \times 2}{3}$$

$$= 48$$

$\therefore$ The required number is 48.

Q. 5

Answer :

Let the required number be x .

Then, we have:

$$\Rightarrow x + \frac{2x}{3} = 55$$

$$\Rightarrow \frac{3x+2x}{3} = 55$$

$$\Rightarrow 5x = 55 \times 3$$

$$\Rightarrow x = \frac{55 \times 3}{5}$$

$$= 33$$

$\therefore$ The required number is 33.

Q. 6

Answer :

Let the required number be x .

Then, we have:

$$\Rightarrow 4x - x = 45$$

$$\Rightarrow 3x = 45$$

$$\Rightarrow x = 15$$

$\therefore$ The required number is 15.

Q. 7

Answer :

Let the number be x .

Then, we have:

$$(x - 21) = (71 - x)$$

$$\Rightarrow x + x = 71 + 21$$

$$\Rightarrow 2x = 92$$

$$\Rightarrow x = \frac{92}{2}$$

$$= 46$$

$$\Rightarrow x = 46$$

$\therefore$ The required number is 46.

Q. 8

Answer :

Let the original number be x .

Then, we have:

$$\Rightarrow \frac{2}{3}x = x - 20$$

$$\Rightarrow \frac{2x}{3} - x = -20$$

$$\Rightarrow \frac{2x-3x}{3} = -20$$

$$\Rightarrow -x = -20 \times 3$$

$$\Rightarrow x = 60$$

$\therefore$ The original number is 60.

Q. 9

Answer :

Let the number be x .

Then, the other number will be $\frac{2x}{5}$.

Now, we have:

$$\Rightarrow x + \frac{2x}{5} = 70$$

$$\Rightarrow \frac{5x+2x}{5} = 70$$

$$\Rightarrow \frac{7x}{5} = 70$$

$$\Rightarrow x = \frac{7 \cdot 10 \times 5}{7_1}$$

$$\therefore \text{Other number} = 50 \times \frac{2}{5} = 20$$

Hence, the numbers are 50 and 20.

Q. 10

Answer :

Let the number be x .

Then, we have:

$$\frac{2}{3}x = \frac{1}{3}x + 3$$

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

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

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

$$\Rightarrow x - 2x = 3 \times (-3)$$

$$\Rightarrow -x = -9$$

$\therefore$ The required number is 9.

Exercises – 7 C

Q. 1

Answer :

(d) $\frac{1}{36}$

We have:

$$5x - \frac{3}{4} = 2x - \frac{2}{3}$$

$$\Rightarrow 5x - 2x = \frac{-2}{3} + \frac{3}{4}$$

$$\Rightarrow 3x = \frac{-8+9}{12}$$

$$\Rightarrow x = \frac{1}{12 \times 3}$$

$$\Rightarrow x = \frac{1}{36}$$

Q. 2

Answer :

(d) $\frac{4}{3}$

We have:

$$2z + \frac{8}{3} = \frac{1}{4}z + 5$$

$$\Rightarrow 2z - \frac{1}{4}z = 5 - \frac{8}{3}$$

$$\Rightarrow \frac{8z-z}{4} = \frac{15-8}{3}$$

$$\Rightarrow \frac{7z}{4} = \frac{7}{3}$$

$$\Rightarrow z = \frac{7^1 \times 4}{3 \times 7_1}$$

$$\Rightarrow z = \frac{4}{3}$$

Q. 3

Answer :

(a) 5

We have:

$$(2n + 5) = 3(3n - 10)$$

$$\Rightarrow 2n + 5 = 9n - 30$$

$$\Rightarrow 2n - 9n = -30 - 5$$

$$\Rightarrow -7n = -35$$

$$\Rightarrow n = \frac{-35}{-7}$$

$$\Rightarrow n = 5$$

Q. 4

Answer :

(c) 8

We have:

$$\frac{x-1}{x+1} = \frac{7}{9}$$

$$\Rightarrow 9(x-1) = 7(x+1)$$

$$\Rightarrow 9x - 9 = 7x + 7$$

$$\Rightarrow 9x - 7x = 7 + 9$$

$$\Rightarrow 2x = 16$$

$$\Rightarrow x = \frac{16}{2}$$

$$\Rightarrow x = 8$$

Q. 5

Answer :

(c) $\frac{1}{2}$

We have:

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

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

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

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

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

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

Q. 6

Answer :

(d) 30

We have:

$$\frac{x}{2} - 1 = \frac{x}{3} + 4$$

$$\Rightarrow \frac{x-2}{2} = \frac{x+12}{3}$$

$$\Rightarrow 3(x-2) = 2(x+12)$$

$$\Rightarrow 3x - 6 = 2x + 24$$

$$\Rightarrow 3x - 2x = 24 + 6$$

$$\Rightarrow x = 30$$

Q. 7

Answer :

(a) 2

We have:

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

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

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

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

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

$$\Rightarrow 3x = 6$$

$$\Rightarrow x = \frac{6}{3}$$

Q. 8

Answer :

(b) 26

Let the consecutive whole numbers be x and $(x + 1)$.

Then, $x + (x + 1) = 53$

$$\Rightarrow 2x + 1 = 53$$

$$\Rightarrow 2x = 53 - 1$$

$$\Rightarrow x = \frac{53-1}{2}$$

$$\Rightarrow x = 26$$

Q. 9

Answer :

(d) 44

Let the two consecutive even numbers be x and $(x + 2)$.

Then, $x + (x + 2) = 86$

$$\Rightarrow 2x + 2 = 86$$

$$\Rightarrow 2x = 86 - 2$$

$$\Rightarrow x = \frac{86-2}{2}$$

$$\Rightarrow x = 42$$

$\therefore$ The required numbers are 42 and $(42 + 2)$, i.e., 44.

Q. 10

Answer :

(b) 17

Let the two consecutive odd numbers be $(x + 1)$ and $(x + 3)$.

Then, $(x + 1) + (x + 3) = 36$

$$\Rightarrow 2x + 4 = 36$$

$$\Rightarrow 2x = 36 - 4$$

$$\Rightarrow x = \frac{36-4}{2}$$

$$\Rightarrow x = 16$$

$\therefore$ The smaller number is 17.

Q. 11

Answer :

(d) 11

Let the whole number be x .

Then, $2x + 9 = 31$

$$\Rightarrow 2x = 31 - 9$$

$$\Rightarrow 2x = 22$$

$$\Rightarrow x = \frac{22}{2}$$

$$\Rightarrow x = 11$$

Q. 12

Answer :

(a) 6

Let the whole number be x .

Then, $3x + 6 = 24$

$$\Rightarrow 3x = 24 - 6$$

$$\Rightarrow 3x = 18$$

$$\Rightarrow x = \frac{18}{3}$$

$$\Rightarrow x = 6$$

Q. 13

Answer :

(a) 30

Let the original number be x .

Then, $\frac{2}{3}x = x - 10$

$$\Rightarrow 2x = 3x - 30$$

$$\Rightarrow 2x - 3x = -30$$

$$\Rightarrow -x = -30$$

$$\Rightarrow x = 30$$

$\therefore$ The required number is 30.

Q. 14

Answer :

(b) 50°

Let the angle be x° .

Then, complementary of $x = 90^\circ - x^\circ$

According to the question, we have :

$$x - 90 - x = 10$$

$$\Rightarrow 2x = 90 + 10$$

$$\Rightarrow 2x = 100$$

$$\Rightarrow x = 50$$

So, the larger angle is 50° .

Q. 15

Answer :

(b) 80°

Let the angle be x° .

Then, complementary angle of $x = 180^\circ - x^\circ$

According to the question, we have :

$$x - (180 - x) = 20$$

$$\Rightarrow x - 180 + x = 20$$

$$\Rightarrow 2x = 10 + 180$$

$$\Rightarrow 2x = 190$$

$$\Rightarrow x = 95$$

Hence, the smaller angle is 80° .

