

Chapter 10: Equations

PRACTICE SET 26 [PAGE 51]

Practice Set 26 | Q 1 | Page 51

Different mathematical operations are given in the two rows below. Find out the number you get in each operation and make equations.

$16 \div 2$; 5×2 ; $9 + 4$; $72 \div 3$; $4 + 5$; 8×3 ; $19 - 10$; $10 - 2$; $37 - 27$; $6 + 7$

SOLUTION

$$16 \div 2 = 8$$

$$5 \times 2 = 10$$

$$9 + 4 = 13$$

$$72 \div 3 = 24$$

$$4 + 5 = 9$$

$$8 \times 3 = 24$$

$$19 - 10 = 9$$

$$10 - 2 = 8$$

$$37 - 27 = 10$$

$$6 + 7 = 13$$

So,

$$16 \div 2 = 10 - 2$$

$$5 \times 2 = 37 - 27$$

$$9 + 4 = 6 + 7$$

$$72 \div 3 = 8 \times 3$$

$$4 + 5 = 19 - 10$$

PRACTICE SET 27 [PAGE 55]

Practice Set 27 | Q 1.1 | Page 55

Rewrite the following using a letter.

The sum of a certain number and 3.

SOLUTION

Let a certain number be x .

$\therefore$ Sum of a certain number and 3 = $x + 3$

Practice Set 27 | Q 1.2 | Page 55

Rewrite the following using a letter.

The difference obtained by subtracting 11 from another number.

SOLUTION

Let another number be x .

$\therefore$ Difference obtained by subtracting 11 from another number = $x - 11$

Practice Set 27 | Q 1.3 | Page 55

Rewrite the following using a letter.

The product of 15 and another number.

SOLUTION

Let another number be x .

$\therefore$ Product of 15 and another number = $15 \times x = 15x$

Practice Set 27 | Q 1.4 | Page 55

Rewrite the following using a letter.

Four times a number is 24.

SOLUTION

Let the number be x .

Four times a number = 24

$\therefore 4 \times x = 24$

$\Rightarrow 4x = 24$

Practice Set 27 | Q 2.1 | Page 55

Find out which operation must be done on both sides of these equation in order to solve them.

$x + 9 = 11$

SOLUTION

Subtract 9 from both sides

$$x + 9 = 11$$

$$\Rightarrow x + 9 - 9 = 11 - 9 \text{ (Subtract 9 from both sides)}$$

$$\Rightarrow x + 0 = 2$$

$$\Rightarrow x = 2$$

Practice Set 27 | Q 2.2 | Page 55

Find out which operation must be done on both sides of these equation in order to solve them.

$$x - 4 = 9$$

SOLUTION

Add 4 to both sides

$$x - 4 = 9$$

$$\Rightarrow x - 4 + 4 = 9 + 4 \text{ (Add 4 to both sides)}$$

$$\Rightarrow x + 0 = 13$$

$$\Rightarrow x = 13$$

Practice Set 27 | Q 2.3 | Page 55

Find out which operation must be done on both sides of these equation in order to solve them.

$$8x = 24$$

SOLUTION

Divide both sides by 8

$$8x = 24$$

$$\Rightarrow \frac{8x}{8} = \frac{24}{8} \text{ (Divide both sides by 8)}$$

$$\Rightarrow x = 3$$

Practice Set 27 | Q 2.4 | Page 55

Find out which operation must be done on both sides of these equation in order to solve them.

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

SOLUTION

Multiply both sides by 6

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

$$\Rightarrow \frac{x}{6} \times 6 = 3 \times 6 \text{ (Multiply both sides by 6)}$$

$$\Rightarrow x = 18$$

Practice Set 27 | Q 3 | Page 55

Given below are some equations and the values of the variables. Are these values the solutions to those equations?

No	Equation	Value of the variable	Solution (Yes/No)
1	$y - 3 = 11$	$y = 3$	No
2	$17 = n + 7$	$n = 10$	
3	$30 = 5x$	$x = 6$	
4	$m/2 = 14$	$m = 7$	

SOLUTION

No	Equation	Value of the variable	Solution(Yes / No)
1	$y - 3 = 11$	$y = 3$	No
2	$17 = n + 7$	$n = 10$	Yes
3	$30 = 5x$	$x = 6$	Yes
4	$m^2 = 14m^2 = 14$	$m = 7$	No

Explanation:

(1) When $y = 3$,

$$\text{LHS} = y - 3 = 3 - 3 = 0$$

$$\text{RHS} = 11$$

Since $\text{LHS} \neq \text{RHS}$, so $y = 3$ is not a solution of equation $y - 3 = 11$.

(2) When $n = 10$,

$$\text{RHS} = n + 7 = 10 + 7 = 17$$

$$\text{LHS} = 17$$

Since $\text{LHS} = \text{RHS}$, so $n = 10$ is a solution of equation $17 = n + 7$.

(3) When $x = 6$,

$$\text{RHS} = 5x = 5 \times 6 = 30$$

$$\text{LHS} = 30$$

Since $\text{LHS} = \text{RHS}$, so $x = 6$ is a solution of equation $30 = 5x$.

(4) When $m = 7$,

$$\text{LHS} = \frac{m}{2} = \frac{7}{2}$$

$$\text{RHS} = 14$$

Since $\text{LHS} \neq \text{RHS}$, so $m = 7$ is not a solution of equation $m/2 = 14$

Practice Set 27 | Q 4.1 | Page 55

Solve the following equation: $y - 5 = 1$

SOLUTION

$$y - 5 = 1$$

$$\Rightarrow y - 5 + 5 = 1 + 5 \text{ (Add 5 to both sides)}$$

$$\Rightarrow y + 0 = 6$$

$$\Rightarrow y = 6$$

Thus, the solution of the given equation is $y = 6$.

Practice Set 27 | Q 4.2 | Page 55

Solve the following equation: $8 = t + 5$

SOLUTION

$$8 = t + 5$$

$$\Rightarrow 8 - 5 = t + 5 - 5 \text{ (Subtract 5 from both sides)}$$

$$\Rightarrow 3 = t + 0$$

$$\Rightarrow 3 = t$$

Thus, the solution of the given equation is $t = 3$.

Practice Set 27 | Q 4.3 | Page 55

Solve the following equation: $4x = 52$

SOLUTION

$$4x = 52$$

$$\Rightarrow \frac{4x}{4} = \frac{52}{4} \text{ (Divide both sides by 4)}$$

$$\Rightarrow x = 13$$

Thus, the solution of the given equation is $x = 13$.

Practice Set 27 | Q 4.4 | Page 55

Solve the following equation: $19 = m - 4$

SOLUTION

$$19 = m - 4$$

$$\Rightarrow 19 + 4 = m - 4 + 4 \text{ (Add 4 to both sides)}$$

$$\Rightarrow 23 = m + 0$$

$$\Rightarrow 23 = m$$

Thus, the solution of the given equation is $m = 23$.

Practice Set 27 | Q 4.5 | Page 55

Solve the following equation: $P/4 = 9$

SOLUTION

$$\frac{P}{4} = 9$$

$$\Rightarrow \frac{P}{4} \times 4 = 9 \times 4 \text{ (Multiply both sides by 4)}$$

$$\Rightarrow p = 36$$

Thus, the solution of the given equation is $p = 36$.

Practice Set 27 | Q 4.6 | Page 55

Solve the following equation: $x + 10 = 5$

SOLUTION

$$x + 10 = 5$$

$$\Rightarrow x + 10 - 10 = 5 - 10 \text{ (Subtract 10 from both sides)}$$

$$\Rightarrow x + 0 = -5$$

$$\Rightarrow x = -5$$

Thus, the solution of the given equation is $x = -5$.

Practice Set 27 | Q 4.7 | Page 55

Solve the following equation: $m - 5 = -12$

SOLUTION

$$m - 5 = -12$$

$$\Rightarrow m - 5 + 5 = -12 + 5 \text{ (Add 5 to both sides)}$$

$$\Rightarrow m + 0 = -7$$

$$\Rightarrow m = -7$$

Thus, the solution of the given equation is $m = -7$.

Practice Set 27 | Q 4.8 | Page 55

Solve the following equation: $p + 4 = -1$

SOLUTION

$$p + 4 = -1$$

$$\Rightarrow p + 4 - 4 = -1 - 4 \text{ (Subtract 4 from both sides)}$$

$$\Rightarrow p + 0 = -5$$

$$\Rightarrow p = -5$$

Thus, the solution of the given equation is $p = -5$.

Practice Set 27 | Q 5.1 | Page 55

Write the given information as an equation and find its solution.

Haraba owns some sheep. After selling 34 of them in the market, he still has 176 sheep. How many sheep did Haraba have at first?

SOLUTION

Let the number of sheep with Haraba at first be x .

According to the given condition,

Number of sheep with Haraba at first – Number of sheep sold in the market = Number of sheep left with Haraba

$$\therefore x - 34 = 176$$

$$\Rightarrow x - 34 + 34 = 176 + 34 \text{ (Add 34 to both sides)}$$

$$\Rightarrow x + 0 = 210$$

$$\Rightarrow x = 210$$

Thus, there were 210 sheep with Haraba at first.

Practice Set 27 | Q 5.2 | Page 55

Write the given information as an equation and find its solution.

Sakshi prepared some jam at home and filled it in bottles. After giving away 7 of the bottles to her friends, she still has 12 for herself. How many bottles had she made in all? If she filled 250g of jam in each bottle, what was the total weight of the jam she made?

SOLUTION

Let the total number of jam bottles made by Sakshi be x .

According to the given condition,

Total number of jam bottles made by Sakshi – Number of jam bottles given to her friends = Number of jam bottles left with Sakshi

$$\therefore x - 7 = 12$$

$$\Rightarrow x - 7 + 7 = 12 + 7 \text{ (Add 7 to both sides)}$$

$$\Rightarrow x + 0 = 19$$

$$\Rightarrow x = 19$$

So, the total number of jam bottles made by Sakshi are 19.

Weight of jam in each bottle = 250 g

$\therefore$ Total weight of the jam

= Weight of jam in each bottle $\times$ Number of bottles

$$= 250 \text{ g} \times 19$$

$$= 4750 \text{ g}$$

$$= 4.75 \text{ kg (1 kg = 1000 g)}$$

Thus, the total weight of the jam made by Sakshi is 4750 g or 4.75 kg.

Practice Set 27 | Q 5.3 | Page 55

Write the given information as an equation and find its solution.

Archana bought some kilograms of wheat. She requires 12 kg per month and she got enough wheat milled for 3 months. After that, she had 14 kg left. How much wheat had Archana bought altogether?

SOLUTION

Let the weight of wheat bought by Archana altogether be x kg.

According to the given condition,

Weight of wheat bought by Archana altogether – Weight of the wheat used in 3 months
= Amount of wheat left with Archana

$$\therefore x \text{ kg} - 12 \text{ kg/month} \times 3 \text{ months} = 14 \text{ kg}$$

$$\Rightarrow x - 36 = 14$$

$$\Rightarrow x - 36 + 36 = 14 + 36 \text{ (Add 36 to both sides)}$$

$$\Rightarrow x + 0 = 50$$

$$\Rightarrow x = 50$$

Thus, the weight of wheat bought by Archana altogether is 50 kg.