

## EXERCISE 4.4

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1. Set up equations and solve them to find the unknown numbers in the following cases:

(a) Add 4 to eight times a number; you get 60.

**Solution:-**

Let us assume the required number be  $x$

Eight times a number =  $8x$

The given above statement can be written in the equation form as,

$$= 8x + 4 = 60$$

By transposing 4 from LHS to RHS it becomes  $- 4$

$$= 8x = 60 - 4$$

$$= 8x = 56$$

Divide both side by 8,

Then we get,

$$= (8x/8) = 56/8$$

$$= x = 7$$

(b) One-fifth of a number minus 4 gives 3.

**Solution:-**

Let us assume the required number be  $x$

One-fifth of a number =  $(1/5) x = x/5$

The given above statement can be written in the equation form as,

$$= (x/5) - 4 = 3$$

By transposing  $- 4$  from LHS to RHS it becomes  $4$

$$= x/5 = 3 + 4$$

$$= x/5 = 7$$

Multiply both side by 5,

Then we get,

$$= (x/5) \times 5 = 7 \times 5$$

$$= x = 35$$

(c) If I take three-fourths of a number and add 3 to it, I get 21.

**Solution:-**

Let us assume the required number be  $x$

Three-fourths of a number =  $(3/4) x$

The given above statement can be written in the equation form as,

$$= (3/4)x + 3 = 21$$

By transposing 3 from LHS to RHS it becomes - 3

$$= (3/4)x = 21 - 3$$

$$= (3/4)x = 18$$

Multiply both side by 4,

Then we get,

$$= (3x/4) \times 4 = 18 \times 4$$

$$= 3x = 72$$

Then,

Divide both side by 3,

$$= (3x/3) = 72/3$$

$$= x = 24$$

**(d) When I subtracted 11 from twice a number, the result was 15.**

**Solution:-**

Let us assume the required number be x

Twice a number = 2x

The given above statement can be written in the equation form as,

$$= 2x - 11 = 15$$

By transposing -11 from LHS to RHS it becomes 11

$$= 2x = 15 + 11$$

$$= 2x = 26$$

Then,

Divide both side by 2,

$$= (2x/2) = 26/2$$

$$= x = 13$$

**(e) Munna subtracts thrice the number of notebooks he has from 50, he finds the result to be 8.**

**Solution:-**

Let us assume the required number be x

Thrice the number = 3x

The given above statement can be written in the equation form as,

$$= 50 - 3x = 8$$

By transposing 50 from LHS to RHS it becomes - 50

$$= - 3x = 8 - 50$$

$$= -3x = -42$$

Then,

Divide both side by -3,

$$= (-3x/-3) = -42/-3$$

$$= x = 14$$

**(f) Ibenhal thinks of a number. If she adds 19 to it and divides the sum by 5, she will get 8.**

**Solution:-**

Let us assume the required number be x

The given above statement can be written in the equation form as,

$$= (x + 19)/5 = 8$$

Multiply both side by 5,

$$= ((x + 19)/5) \times 5 = 8 \times 5$$

$$= x + 19 = 40$$

Then,

By transposing 19 from LHS to RHS it becomes - 19

$$= x = 40 - 19$$

$$= x = 21$$

**(g) Anwar thinks of a number. If he takes away 7 from 5/2 of the number, the result is 23.**

**Solution:-**

Let us assume the required number be x

5/2 of the number =  $(5/2)x$

The given above statement can be written in the equation form as,

$$= (5/2)x - 7 = 23$$

By transposing -7 from LHS to RHS it becomes 7

$$= (5/2)x = 23 + 7$$

$$= (5/2)x = 30$$

Multiply both side by 2,

$$= ((5/2)x) \times 2 = 30 \times 2$$

$$= 5x = 60$$

Then,

Divide both the side by 5

$$= 5x/5 = 60/5$$

$$= x = 12$$

**2. Solve the following:**

**(a) The teacher tells the class that the highest marks obtained by a student in her class is twice the lowest marks plus 7. The highest score is 87. What is the lowest score?**

**Solution:-**

Let us assume the lowest score be  $x$

From the question it is given that,

The highest score is = 87

Highest marks obtained by a student in her class is twice the lowest marks plus 7 =  $2x + 7$

$5/2$  of the number =  $(5/2)x$

The given above statement can be written in the equation form as,

Then,

$$= 2x + 7 = \text{Highest score}$$

$$= 2x + 7 = 87$$

By transposing 7 from LHS to RHS it becomes -7

$$= 2x = 87 - 7$$

$$= 2x = 80$$

Now,

Divide both the side by 2

$$= 2x/2 = 80/2$$

$$= x = 40$$

Hence, the lowest score is 40

**(b) In an isosceles triangle, the base angles are equal. The vertex angle is  $40^\circ$ . What are the base angles of the triangle? (Remember, the sum of three angles of a triangle is  $180^\circ$ ).**

**Solution:-**

From the question it is given that,

We know that, the sum of angles of a triangle is  $180^\circ$

Let base angle be  $b$

Then,

$$= b + b + 40^\circ = 180^\circ$$

$$= 2b + 40 = 180^\circ$$

By transposing 40 from LHS to RHS it becomes -40

$$= 2b = 180 - 40$$

$$= 2b = 140$$

Now,

Divide both the side by 2

$$= 2b/2 = 140/2$$
$$= b = 70^\circ$$

Hence,  $70^\circ$  is the base angle of an isosceles triangle.

**(c) Sachin scored twice as many runs as Rahul. Together, their runs fell two short of a double century. How many runs did each one score?**

**Solution:-**

Let us assume Rahul's score be  $x$

Then,

Sachin scored twice as many runs as Rahul is  $2x$

Together, their runs fell two short of a double century,

$$= \text{Rahul's score} + \text{Sachin's score} = 200 - 2$$

$$= x + 2x = 198$$

$$= 3x = 198$$

Divide both the side by 3,

$$= 3x/3 = 198/3$$

$$= x = 66$$

So, Rahul's score is 66

And Sachin's score is  $2x = 2 \times 66 = 132$

**3. Solve the following:**

**(i) Irfan says that he has 7 marbles more than five times the marbles Parmit has. Irfan has 37 marbles. How many marbles does Parmit have?**

**Solution:-**

Let us assume number of Parmit's marbles =  $m$

From the question it is given that,

Then,

Irfan has 7 marbles more than five times the marbles Parmit has

$$= 5 \times \text{Number of Parmit's marbles} + 7 = \text{Total number of marbles Irfan having}$$

$$= (5 \times m) + 7 = 37$$

$$= 5m + 7 = 37$$

By transposing 7 from LHS to RHS it becomes -7

$$= 5m = 37 - 7$$

$$= 5m = 30$$

Divide both the side by 5

$$= 5m/5 = 30/5$$

$$= m = 6$$

So, Permit has 6 marbles

**(ii) Laxmi's father is 49 years old. He is 4 years older than three times Laxmi's age. What is Laxmi's age?**

**Solution:-**

Let Laxmi's age to be =  $y$  years old

From the question it is given that,

Lakshmi's father is 4 years older than three times of her age

$$= 3 \times \text{Laxmi's age} + 4 = \text{Age of Lakshmi's father}$$

$$= (3 \times y) + 4 = 49$$

$$= 3y + 4 = 49$$

By transposing 4 from LHS to RHS it becomes -4

$$= 3y = 49 - 4$$

$$= 3y = 45$$

Divide both the side by 3

$$= 3y/3 = 45/3$$

$$= y = 15$$

So, Lakshmi's age is 15 years.

**(iii) People of Sundargram planted trees in the village garden. Some of the trees were fruit trees. The number of non-fruit trees were two more than three times the number of fruit trees. What was the number of fruit trees planted if the number of non-fruit trees planted was 77?**

**Solution:-**

Let the number of fruit trees be  $f$ .

From the question it is given that,

$3 \times$  number of fruit trees + 2 = number of non-fruit trees

$$= 3f + 2 = 77$$

By transposing 2 from LHS to RHS it becomes -2

$$= 3f = 77 - 2$$

$$= 3f = 75$$

Divide both the side by 3

$$= 3f/3 = 75/3$$

$$= f = 25$$

So, number of fruit tree was 25.

**4. Solve the following riddle:**

I am a number,

Tell my identity!

Take me seven times over

And add a fifty!

To reach a triple century

You still need forty!

**Solution:-**

Let us assume the number be  $x$ .

Take me seven times over and add a fifty =  $7x + 50$

To reach a triple century you still need forty =  $(7x + 50) + 40 = 300$

$$= 7x + 50 + 40 = 300$$

$$= 7x + 90 = 300$$

By transposing 90 from LHS to RHS it becomes -90

$$= 7x = 300 - 90$$

$$= 7x = 210$$

Divide both side by 7

$$= 7x/7 = 210/7$$

$$= x = 30$$

Hence the number is 30.