

Exercise 4.4

Question 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.
- (b) One-fifth of a number minus 4 gives 3.
- (c) If I take three-fourth of a number and add 3 to it, I get 21.
- (d) When I subtracted 11 from twice a number, the result was 15.
- (e) Munna subtracts thrice the number of notebooks he has from 50, he finds the result to be 8.
- (f) Ibenhal thinks of a number. If she adds 19 to it divides the sum by 5, she will get 8.
- (g) Answer thinks of a number. If he takes away 7 from $\frac{5}{2}$ of the number, the result is $\frac{11}{2}$.

Answer 1:

- (a) Let the number be x .

According to the question, $8x + 4 = 60$

$$\Rightarrow 8x = 60 - 4 \quad \Rightarrow 8x = 56 \quad \Rightarrow x = \frac{56}{8} \quad \Rightarrow x = 7$$

- (b) Let the number be y .

According to the question, $\frac{y}{5} - 4 = 3$

$$\Rightarrow \frac{y}{5} = 3 + 4 \quad \Rightarrow \frac{y}{5} = 7 \quad \Rightarrow y = 7 \times 5 \quad \Rightarrow y = 35$$

- (c) Let the number be z .

According to the question, $\frac{3}{4}z + 3 = 21$

$$\Rightarrow \frac{3}{4}z = 21 - 3 \quad \Rightarrow \frac{3}{4}z = 18 \quad \Rightarrow 3z = 18 \times 4 \quad \Rightarrow 3z = 72$$
$$\Rightarrow z = \frac{72}{3} \quad \Rightarrow z = 24$$

- (d) Let the number be x .

According to the question, $2x - 11 = 15$

$$\Rightarrow 2x = 15 + 11 \quad \Rightarrow 2x = 26 \quad \Rightarrow x = \frac{26}{2} \quad \Rightarrow x = 13$$

- (e) Let the number be m .

According to the question, $50 - 3m = 8$

$$\Rightarrow -3m = 8 - 50 \quad \Rightarrow -3m = -42 \quad \Rightarrow m = \frac{-42}{-3} \quad \Rightarrow m = 14$$

- (f) Let the number be n .

According to the question, $\frac{n+19}{5} = 8$

$$\Rightarrow n + 19 = 8 \times 5 \quad \Rightarrow n + 19 = 40$$
$$\Rightarrow n = 40 - 19$$
$$\Rightarrow n = 21$$

(g) Let the number be x .

According to the question, $\frac{5}{2}x - 7 = \frac{11}{2}$

$$\Rightarrow \frac{5}{2}x = \frac{11}{2} + 7$$

$$\Rightarrow \frac{5}{2}x = \frac{11+14}{2}$$

$$\Rightarrow \frac{5}{2}x = \frac{25}{2}$$

$$\Rightarrow 5x = \frac{25 \times 2}{2}$$

$$\Rightarrow 5x = 25$$

$$\Rightarrow x = \frac{25}{5}$$

$$\Rightarrow x = 5$$

Question 2:

Solve the following:

- (a) The teacher tells the class that the highest marks obtained by a student in her class are twice the lowest marks plus 7. The highest score is 87. What is the lowest score?
- (b) In an isosceles triangle, the base angles are equal. The vertex angle is 40° . What are the base angles of the triangle? (Remember, the sum of three angles of a triangle is 180° .)
- (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?

Answer 2:

(a) Let the lowest marks be y .

According to the question, $2y + 7 = 87$

$$\Rightarrow 2y = 87 - 7$$

$$\Rightarrow 2y = 80$$

$$\Rightarrow y = \frac{80}{2}$$

$$\Rightarrow y = 40$$

Thus, the lowest score is 40.

(b) Let the base angle of the triangle be b .

Given, $a = 40^\circ, b = c$

Since, $a + b + c = 180^\circ$

[Angle sum property of a triangle]

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

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

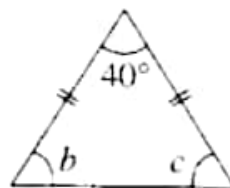
$$\Rightarrow 2b = 180^\circ - 40^\circ$$

$$\Rightarrow 2b = 140^\circ$$

$$\Rightarrow b = \frac{140^\circ}{2}$$

$$\Rightarrow b = 70^\circ$$

Thus, the base angles of the isosceles triangle are 70° each.



(c) Let the score of Rahul be x runs and Sachin's score is $2x$.

According to the question, $x + 2x = 198$

$$\Rightarrow 3x = 198$$

$$\Rightarrow x = \frac{198}{3}$$

$$\Rightarrow x = 66$$

Thus, Rahul's score = 66 runs

And Sachin's score = $2 \times 66 = 132$ runs.

Question 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?
- (ii) Laxmi's father is 49 years old. He is 4 years older than three times Laxmi's age. What is Laxmi's age?
- (iii) People of Sundergram planted a total of 102 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?

Answer 3:

- (i) Let the number of marbles Parmit has be m .

According to the question, $5m + 7 = 37$

$$\Rightarrow 5m = 37 - 7 \quad \Rightarrow 5m = 30 \quad \Rightarrow m = \frac{30}{5} \quad \Rightarrow m = 6$$

Thus, Parmit has 6 marbles.

- (ii) Let the age of Laxmi be y years.

Then her father's age = $(3y + 4)$ years

According to question, $3y + 4 = 49$

$$\Rightarrow 3y = 49 - 4 \quad \Rightarrow 3y = 45 \quad \Rightarrow y = \frac{45}{3} \quad \Rightarrow y = 15$$

Thus, the age of Laxmi is 15 years.

- (iii) Let the number of fruit trees be t .

Then the number of non-fruits tree = $3t + 2$

According to the question, $t + 3t + 2 = 102$

$$\Rightarrow 4t + 2 = 102 \quad \Rightarrow 4t = 102 - 2 \quad \Rightarrow 4t = 100 \quad \Rightarrow t = \frac{100}{4}$$

$$\Rightarrow t = 25$$

Thus, the number of fruit trees are 25.

Question 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!

Answer 4:

Let the number be n .

According to the question, $7n + 50 + 40 = 300$

$$\Rightarrow 7n + 90 = 300 \quad \Rightarrow 7n = 300 - 90 \quad \Rightarrow 7n = 210 \quad \Rightarrow n = \frac{210}{7}$$

$$\Rightarrow n = 30$$

Thus, the required number is 30.