

Board – CBSE

Class – 7th

Topic – Simple Equations 4.4

Q.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-fourths 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 and divides the sum by 5, she will get 8.

(g) Anwar thinks of a number. If he takes away 7 from $\frac{5}{2}$ of the number, the result is 23.

Sol: (a) Let the number be x .

8 times of this number = $8x$

$$8x + 4 = 60$$

$$8x = 60 - 4 \text{ (Transposing 4 to R.H.S.)}$$

$$8x = 56$$

Dividing both sides by 8,

$$\frac{8x}{8} = \frac{56}{8}$$

$$x = 7$$

(b) Let the number be x .

One-fifth of this number = $\frac{x}{5}$

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

$$\frac{x}{5} = 3 + 4 \text{ (Transposing } -4 \text{ to R.H.S.)}$$

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

Multiplying both sides by 5,

$$\frac{x \times 5}{5} = 7 \times 5$$

$$x = 35$$

(c) Let the number be x.

Three-fourth of this number = $\frac{3x}{4}$

$$\frac{3x}{4} + 3 = 21$$

$$\frac{3x}{4} = 18 \text{ (Transposing 3 to R.H.S.)}$$

Multiplying both sides by 4,

$$\frac{3x \times 4}{4} = 18 \times 4$$

$$3x = 72$$

Dividing both sides by 3,

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

$$x = 24$$

(d) Let the number be x.

Twice of this number = $2x$

$$2x - 11 = 15$$

$$2x = 15 + 11 \text{ (Transposing } -11 \text{ to R.H.S.)}$$

$$2x = 26$$

Dividing both sides by 2,

$$\frac{2x}{2} = \frac{26}{2}$$

$$x = 13$$

(e) Let the number of books be x.

Thrice the number of books = $3x$

$$50 - 3x = 8$$

$$-3x = 8 - 50 \text{ (Transposing 50 to R.H.S.)}$$

$$-3x = -42$$

Dividing both sides by -3 ,

$$\frac{-3x}{-3} = \frac{-42}{-3}$$

$$x = 14$$

(f) Let the number be x .

$$\frac{x+19}{5} = 8$$

Multiplying both sides by 5 ,

$$\frac{(x+19) \times 5}{5} = 8 \times 5$$

$$x + 19 = 40$$

$$x = 40 - 19 \text{ (Transposing 19 to R.H.S.)}$$

$$x = 21$$

(g) Let the number be x .

$$\frac{5}{2} \text{ of this number} = \frac{5x}{2}$$

$$\frac{5x}{2} - 7 = 23$$

$$\frac{5x}{2} = 23 + 7 \text{ (Transposing } -7 \text{ to R.H.S.)}$$

$$\frac{5x}{2} = 30$$

Multiplying both sides by 2 ,

$$\frac{5x \times 2}{2} = 30 \times 2$$

$$5x = 60$$

Dividing both sides by 5 ,

$$\frac{5x}{5} = \frac{60}{5}$$

$$x = 12$$

Q.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?

(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?

Sol: (a) Let the lowest score be l .

$$2 \times \text{Lowest marks} + 7 = \text{Highest marks}$$

$$2l + 7 = 87$$

$$2l = 87 - 7 \text{ (Transposing 7 to R.H.S.)}$$

$$2l = 80$$

Dividing both sides by 2,

$$\frac{2l}{2} = \frac{80}{2}$$

$$l = 40$$

Therefore, the lowest score is 40.

(b) Let the base angles be equal to b .

The sum of all interior angles of a triangle is 180° .

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

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

$$2b = 180^\circ - 40^\circ = 140^\circ \text{ (Transposing } 40^\circ \text{ to R.H.S.)}$$

Dividing both sides by 2,

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

$$b = 70^\circ$$

Therefore, the base angles of the triangle measure 70° .

(c) Let Rahul's score be x .

Therefore, Sachin's score = $2x$

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

$$2x + x = 198$$

$$3x = 198$$

Dividing both sides by 3,

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

$$x = 66$$

Rahul's score = 66

Sachin's score = $2 \times 66 = 132$