

class - VII Mathematics

Ch - 04

Simple Equations

Ex - 4.4

Q.2. Sol.

(a). Let the lowest marks in the class be x .

Twice the lowest marks = $2x$
= $2x$

Add 7 to it $\Rightarrow 2x + 7$

Alq, $2x + 7 = 87$ — (i)

on transposing, 7 to RHS, we get

$$\Rightarrow 2x = 87 - 7 = 80$$

$$\Rightarrow 2x = 80$$

Dividing both sides by 2, we get.

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

$$\Rightarrow \boxed{x = 40}$$

Hence, the lowest marks in the class is 40.

Check: put $x = 40$ in LHS of eq (i) we get

$$\text{LHS} = 2 \times 40 + 7$$

$$= 80 + 7 = 87 = \text{RHS.}$$

Hence, $x = 40$ is verified. ✓

(b). Sol. Let ABC be an isosceles triangle whose base angles are equal and of measure x° .

Also, Vertex angle = 40° (given)

Since, sum of three angles of a triangle is 180° .

$$\therefore \angle A + \angle B + \angle C = 180^\circ$$

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

$$\Rightarrow 40^\circ + 2x^\circ = 180^\circ \text{ — (i)}$$

On transposing 40° , we get,

$$\Rightarrow 2x^\circ = 180^\circ - 40^\circ = 140^\circ$$

$$\Rightarrow \underline{2x^\circ = 140^\circ}$$

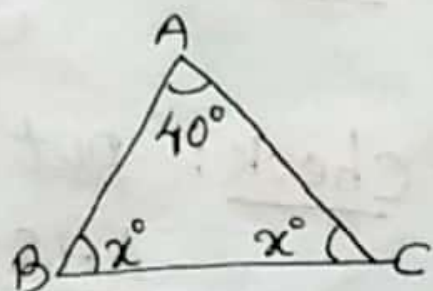
On dividing both sides by 2, we get

$$\frac{2x^\circ}{2} = \left(\frac{140}{2}\right)^\circ$$

$$\Rightarrow \boxed{x^\circ = 70^\circ}$$

Hence, Base angles are of measure 70° .

Check: put $x = 70^\circ$ in LHS of eq (i) we get,



$$\text{LHS} = 40^\circ + 2 \times (70^\circ)$$

$$= 40^\circ + 140^\circ = \underline{180^\circ}$$

Hence, $x = 70^\circ$ is verified. ✓

(C) Sol.

Let runs scored by Rahul be x and runs scored by Sachin be $2x$
Since, the sum of their runs be two short of a double century.

∴, equation becomes

$$x + 2x + 2 = 200$$

$$\Rightarrow \underline{3x + 2 = 200} \quad \text{--- (i)}$$

on transposing 2, we get

$$3x = 200 - 2$$

$$\Rightarrow 3x = 198$$

Dividing both sides by 3, we get

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

$$\Rightarrow \boxed{x = 66}$$

Hence, runs scored by Rahul = 66 runs.

And by Sachin = $2 \times 66 = 132$ runs.

Check put $x = 66$ in LHS of eq (i)
we get:

$$\begin{aligned}\text{LHS} &= 3 \times 66 + 2 \\ &= 198 + 2 \\ &= 200 = \text{RHS.}\end{aligned}$$

Hence, $x = 66$ is verified.

Q.3. Sol.

Let Parmit has x marble.

Its 5 times $= 5 \times x = 5x$.

Add 7 to it $= 5x + 7$

A/q, $5x + 7 = 37$ — (1)

or transposing 7, we get

$$\Rightarrow 5x = 37 - 7$$

$$\Rightarrow 5x = 30$$

or dividing both sides by 5 we get

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

$$\Rightarrow \boxed{x = 6}$$

Hence, Parmit has 6 marbles.

Check: put up the value of x in eq (i).

$$\text{LHS} = 5 \times 6 + 7 = 30 + 7 = 37 = \text{RHS.}$$