

# MATHEMATICS

MATHEMATICS

Class-7th

Chapter-6

The Triangle and  
its properties

Solution of  
Exercise-6.5

-By:-A.K.Jha

'Mathematics'

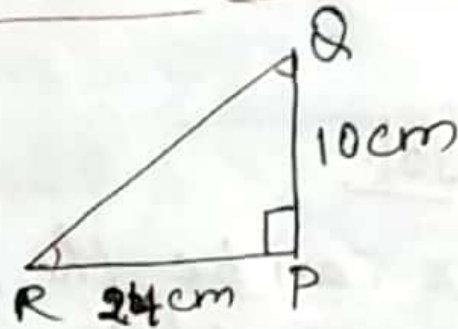
Class - VII      Ch - 06      Triangle and its  
properties.

'Ex - 6.5'

Q.1. Sol:  $\triangle PQR$  is right-angled at P.

Using Pythagoras

property;



$$QR^2 = PQ^2 + PR^2$$
$$\Rightarrow QR^2 = (10)^2 + (24)^2$$

$$= 100 + 576$$

$$\Rightarrow QR^2 = \underline{676}$$

Taking square root on both sides,  
we get;

$$\Rightarrow QR = \sqrt{676}$$

$$\Rightarrow QR = \sqrt{26 \times 26}$$

$$\therefore \underline{QR = 26 \text{ cm}} \quad \underline{\text{Ans:}} \quad \checkmark$$

Pythagoras property:-

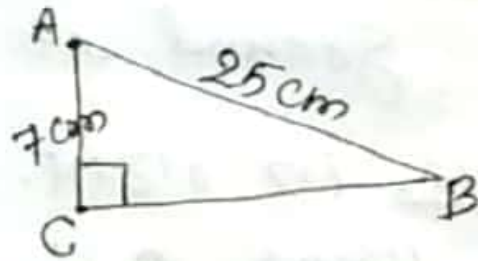
$$\boxed{H^2 = B^2 + P^2} \quad \checkmark$$

only for right-angled triangle.



Q.2. Sol.  $\triangle ABC$  is right-angled at C.

Using Pythagoras property:



$$AB^2 = AC^2 + BC^2$$

$$\Rightarrow (25)^2 = 7^2 + BC^2$$

$$\Rightarrow 7^2 + BC^2 = (25)^2$$

$$\Rightarrow 49 + BC^2 = 625$$

$$\Rightarrow BC^2 = 625 - 49$$

$$\Rightarrow \underline{BC^2 = 576}$$

Taking square root on both sides, we get

$$BC = \sqrt{576}$$

$$\Rightarrow BC = \sqrt{24 \times 24}$$

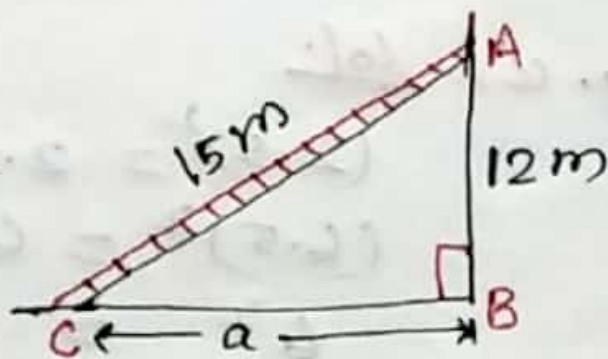
$$\Rightarrow \underline{BC = 24 \text{ cm.}} \quad \underline{\text{Ans.}} \checkmark$$

Q.3. Sol.

Let the ladder be AC where c is the foot of the ladder

and A be the top

of ladder at 12 m high from the ground.



Wall is a right-angled to the ground at point B.

Now, in right-angled triangle ABC, using Pythagoras property;

$$\underline{AC^2 = AB^2 + BC^2}$$

$$\Rightarrow 15^2 = 12^2 + BC^2$$

$$\Rightarrow 225 = 144 + BC^2$$

$$\Rightarrow 225 = 144 + a^2$$

$$\Rightarrow 225 - 144 = a^2$$

$$\Rightarrow \underline{81 = a^2}$$

$$\Rightarrow a = \sqrt{81} = \sqrt{9 \times 9} = 9$$

Hence, BC = 9m. ✓

Distance of the foot of the ladder from the wall is 9m. ✓

Q.4. (c) sol.

$$(2.5)^2 = 2.5 \times 2.5 = \underline{6.25}$$

$$(6.5)^2 = 6.5 \times 6.5 = \underline{42.25}$$

$$6^2 = 6 \times 6 = \underline{36.00}$$

We find that,  $42.25 = 6.25 + 36.00$

Hence,  $\underline{(6.5)^2 = (2.5)^2 + (6)^2}$  ✓

— Here, Pythagoras property is satisfied.

(iii).  $(1.5)^2 = 1.5 \times 1.5 = \underline{2.25}$

$$2^2 = \underline{2 \times 2 = 4}$$

$$(2.5)^2 = \underline{2.5 \times 2.5 = 6.25}$$

We find that,  $\therefore$

$$\underline{6.25 = 2.25 + 4.00}$$

Here,  $(2.5)^2 = (1.5)^2 + 2^2$

Hence, Pythagoras property is satisfied.

The End.