Q 1.PQR is a triangle, right angled at P. If PQ = 10 cm and PR = 24 cm, find QR.

Solution:

In right angled triangle PQR, we have

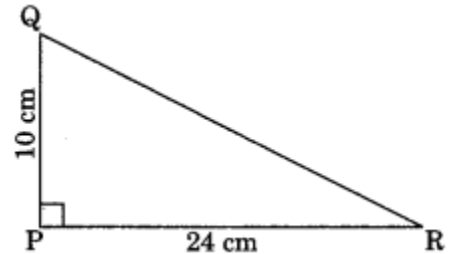$QR^2 = PQ^2 + PR^2$ From Pythagoras property)

$\quad = (10)^2 + (24)^2$

$\quad = 100 + 576 = 676$

$\therefore QR = \sqrt{676} = 26$ cm

The, the required length of QR = 26 cm.

Q 2.ABC is a triangle, right angled at C. If AB = 25 cm and AC = 7 cm, find BC.

Solution:

In right angled∆ABC, we have
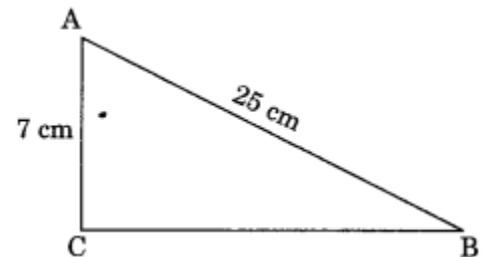
$BC^2 + (7)^2 = (25)^2$ (By Pythagoras property)

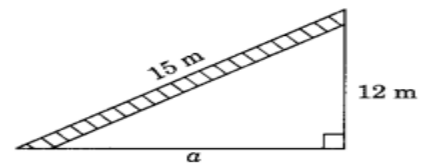$\Rightarrow BC^2 + 49 = 625$

$\Rightarrow BC^2 = 625 - 49$

$\Rightarrow BC^2 = 576$

$\therefore BC = \sqrt{576} = 24$ cm

Thus, the required length of BC = 24 cm.

Q 3.A 15 m long ladder reached a window 12 m high from the ground on placing it against a wall at a distance a. Find the distance of the foot of the ladder from the wall.

Q 4.Which of the following can be the sides of a right triangle?

(i) 2.5 cm, 6.5 cm, 6 cm.   (ii) 2 cm, 2 cm, 5 cm   (iii) 1.5 cm, 2 cm, 2.5 cm

Solution: (i) Given sides are 2.5 cm, 6.5 cm, 6 cm.

Square of the longer side = $(6.5)^2$ = 42.25 cm.

Sum of the square of other two sides

= $(2.5)^2 + (6)^2$ = 6.25 + 36

= 42.25 cm.

Since, the square of the longer side in a triangle is equal to the sum of the squares of other two sides.

$\therefore$ The given sides form a right triangle.

Q 5. A tree is broken at a height of 5 m from the ground and its top touches the ground at a distance of 12 m from the base of the tree . Find the original height of the tree.

Solution: Let AB be the original height of the tree and broken at C touching the ground at D such that

AC = 5 m and AD = 12 m

In right triangle $\triangle CAD$,

$AD^2 + AC^2 = CD^2$ (By Pythagoras property)

$\Rightarrow (12)^2 + (5)^2 = CD^2$
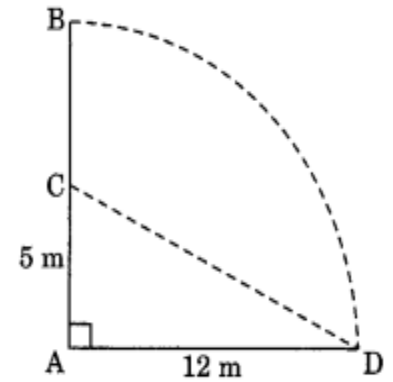
$\Rightarrow 144 + 25 = CD^2$

$\Rightarrow 169 = CD^2$

$\therefore CD = \sqrt{169} = 13$ m

But CD = BC

 AC + CB = AB

 5 m + 13 m = AB

$\therefore$ AB = 18 m .   Thus, the original height of the tree = 18 m.

Q 6. Angles Q and R of a $\triangle PQR$ are 25° and 65°. Write which of the following is true.

(i) $PQ^2 + QR^2 = RP^2$ (ii) $PQ^2 + RP^2 = QR^2$ (iii) $RP^2 + QR^2 = PQ^2$

Q 7. Find the perimeter of the rectangle whose length is 40 cm and a diagonal is 41 cm.

Solution:

Given: Length AB = 40 cm Diagonal AC = 41 cm

In right triangle ABC, we have

$AB^2 + BC^2 = AC^2$ (By Pythagoras property)

$\Rightarrow (40)^2 + BC^2 = (41)^2$

$\Rightarrow 1600 + BC^2 = 1681$

$\Rightarrow BC^2 = 1681 - 1600$

$\Rightarrow BC^2 = 81$

$\therefore BC = \sqrt{81} = 9$ cm

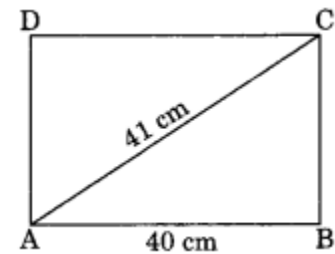$\therefore$ AB = DC = 40 cm and BC = AD = 9 cm (Property of rectangle)

$\therefore$ The required perimeter

= AB + BC + CD + DA

= (40 + 9 + 40 + 9) cm

= 98 cm

Q 8. The diagonals of a rhombus measure 16 cm and 30 cm. Find its perimeter.

Those Questions which have not solved, do your self