SHIKSHA CLASSES

Subject : Geometry | **QUESTION PAPER** | **Total Marks** : 20

Class : X | **2. Pythagoras theorem** | **Time** : 1 Hour.

Q. 1 A) Choose the correct alternative from objectives given below. **(2)**

1) In ΔABC, M is the midpoint of side BC. If $AB^2 + AC^2 = 410cm^2$ and BC = 12cm, then what is the length of median AM?

a) 6cm b) 6.5cm c) 12cm d) 13cm

2) What is the length of hypotenuse of a right angled triangle, if length of sides forming right angle are 9cm and 12cm ?

a) 13cm b) 8cm c) 15cm d) 14cm

Q. 1 B) Solve any one the following questions: **(1)**

1) In ΔLMN, ℓ =5, m=13, n=12. State whether ΔLMN is a right angled triangle or not.

2) Find the side of a square whose diagonal is 10cm.

Q. 2 : A) Attempt any one of the following question. **(2)**

1) The hypotenuse of an isosceles right angled ΔABC is $8\sqrt{2}$ cm. Find BC.

2) Find the diagonal of a rectangle whose length is 35cm and breadth is 12cm.

$\rightarrow$ Diagonal of rectangle divides in two right angled triangle.

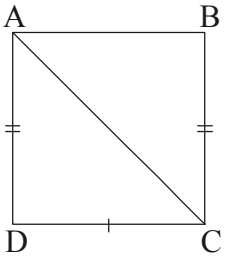
$\square = \square + \square$ ---[$\therefore$ Pythagorus theorem]

$= 12^2 + 35^2$

$= 144 + 1225$

$= 1369$

AC = $\square$



$\therefore$ Diagonal at rectengle is $\square$ cm.

Q. 2 : B) Attempt any one of the following question. **(2)**

1) In ΔABC seg AP is a median. If BC = 18, $AB^2+AC^2 = 260$ Find AP.

2) In $\Delta RST, \angle S = 90^0, \angle T = 30^0,$ RT=12cm, then find RS and ST.

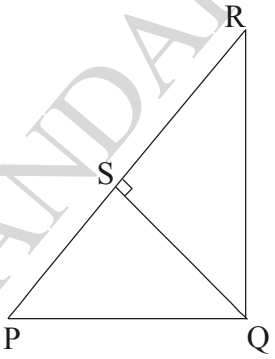
Q. 3 : A) Attempt any one of the following questions. **(3)**

1) Seg AM is a median of ΔABC. If AB=22, AC = 34, BC = 24, Find AM.

2) State and prove theorem of geometric mean.

→ Proof : In right angle trangle PQR

seg QS ⊥ hypotenuse PR



$\Delta QSR \sim \Delta PSR$ [simillarity of right triangle]

$$\frac{\square}{\square} = \frac{\square}{\square}$$

∴ seg QS is geometric mean of seg PS & SR.

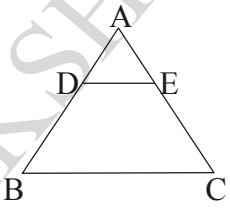
$$\frac{\square}{\square} = \frac{\square}{\square}$$

$QS^2 = PS \times SR.$

Q. 3 : B) Attempt any one of the following questions. **(3)**

1) Find the perimeter of an isosceles right angled triangle with each of the congruent side measuring 7cm.

2) In $\Delta ABC, DE \parallel BC$ If DB = 5.4 cm, AD = 1.8 cm EC = 7.2 cm. then find AE.

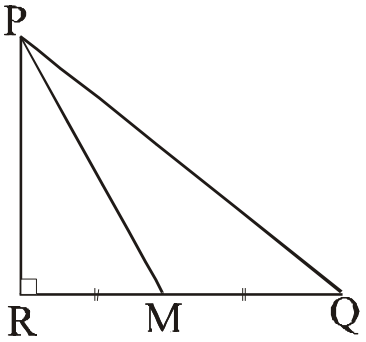


Q. 4 : Solve the following (Any one) **(4)**

1) State and prove Pythagoras theorem.

2) In the adjoining figure M is the midpoint of QR. $\angle PRQ = 90^0$

Prove that, $PQ^2 = 4PM^2 - 3PR^2$

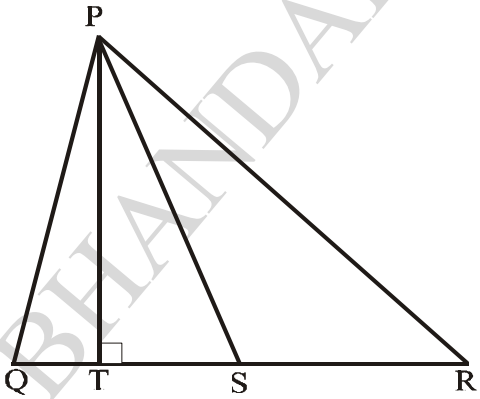


Q. 5 : Solve the following (Any one) **(3)**

1) Prove that, the sum of the squares of the diagonals of a rhombus is equal to the sum of the squares of the sides.

2) In the adjoining figure seg PS is the median of ΔPQR and $PT \perp QR$ prove that.

i) $PR^2 = PS^2 + QR \times ST + \left[\frac{QR}{2}\right]^2$



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