TRIANGLES:



In the given figure, RQ and PS are perpendicular to the line PQ.

The lengths of the sides PO and OQ are 15 cm and 5 cm respectively. If the area of Δ ROQ is 7.5 cm², then find the area of Δ POS.



In the given figure, a quadrilateral PQRS is shown such that $\angle PQR = 90^{\circ}$

If $PS^2 = PQ^2 + QR^2 + RS^2$, then find the measure of $\angle PRS$.



In the given figure, two right-angled triangles Δ PQR and Δ QST are shown.

If QR = 10 cm, TQ = 12 cm, PQ = (2x + 6) cm, and QS = (4x - 4) cm, then find the value of x and hence find the length of the side PQ.

4) In the following figures, find the value of x.

(a)



(b)



5)



In the given figure, AE = 4 cm, AB = 3 cm, BC = 12 cm, and CD = 9 cm. Find the length DE.

6) State and prove the basic proportionality theorem.

7) State and prove the Pythagoras Theorem. Is the converse of Pythagoras Theorem true? Give reason in support of your answer.

8)



 ΔABC is shown in the figure.

D and E are points on the sides AB and AC respectively such that DE||BC.

(a) Prove that
$$\triangle ADE \sim \triangle ABC$$
 (1 mark)

(b) Find DE, if BC = 6 cm and AD =
$$\frac{1}{2}$$
 BD (2 marks)

(c) Find
$$\frac{\operatorname{ar}(\Delta ADE)}{\operatorname{ar}(\Delta ABC)} (\frac{11}{2})$$
 marks)

(d) Find
$$\frac{\text{ar}(\Delta ADE)}{\text{ar}(\text{trapezium BCED})} \begin{pmatrix} 1\frac{1}{2} \\ \text{marks} \end{pmatrix}$$

9)



In the given figure, an isosceles $\triangle ABC$ is shown in which AB = AC = 17 cm and BC = 16 cm

A rectangle WXYZ is drawn inside the triangle such that YZ = x and WZ = y

Represent x in terms of y.

10) Prove that in any triangle the sum of the squares of any two sides is equal to twice the square of half the third side together with twice the square of the median.