

# Maths Work Sheet

Class - X

Chapter:- Circles

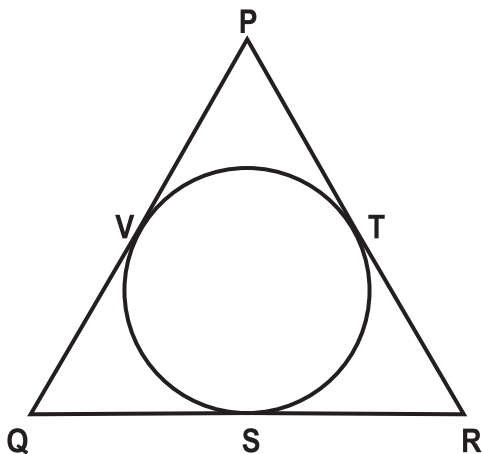
**Q01 :}** The length of a tangent from a point P at a distance 5 cm from the centre of the circle is 4 cm. Find the radius of the circle.

**Q02 :}** Prove that, in two concentric circles, the chord of the larger circle which touches the smaller circle, is bisected at the point of contact.

**Q03 :}** Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the points of contact at the centre.

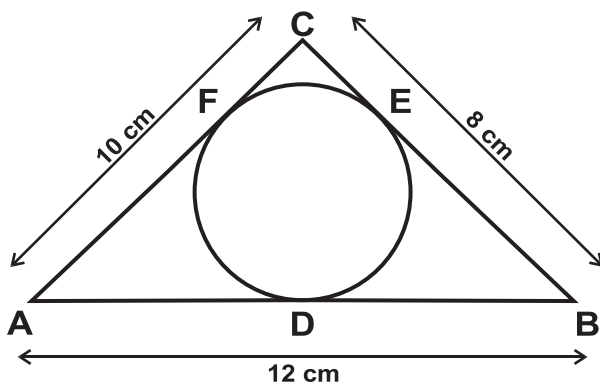
**Q04 :}** A circle touches all the four sides of a quadrilateral ABCD whose side  $AB = 6$  cm,  $BC = 7$  cm and  $CD = 4$  cm. Find AD.

**Q05 :}** In the given fig., if  $PQ = PR$ , prove that  $QS = RS$ .

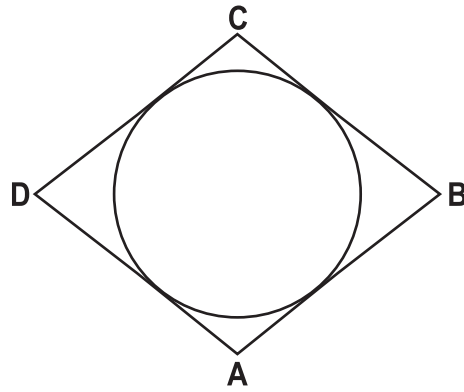


**Q06 :}** Two circles touches externally at a point P and from a point T on the common tangent at P, tangent segment TQ and TR are drawn to the two circles. Prove that  $TQ = TR$ .

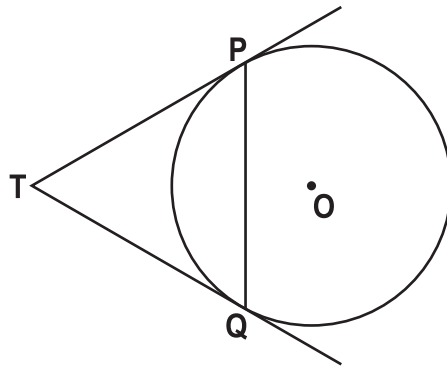
**Q07 :}** A circle is inscribed in  $\triangle ABC$  having sides 8 cm, 10 cm and 12 cm as shown in fig. Find AD, BE and CF.



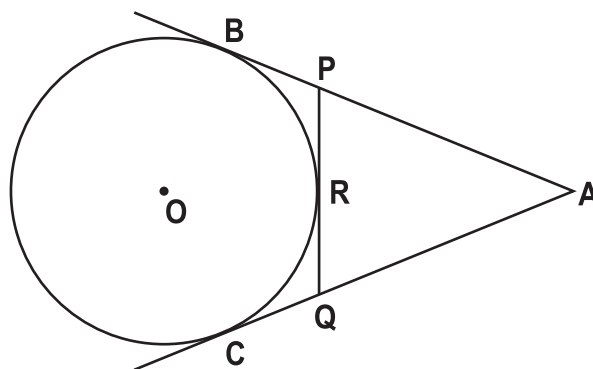
**Q08 :** In the fig., a circle touches all the four sides of a quadrilateral ABCD whose sides  $AB = 8$  cm,  $BC = 9$  cm and  $CD = 6$  cm. Find AD.



**Q09 :** PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangents at P and Q intersect at a point T. Find the length TP.

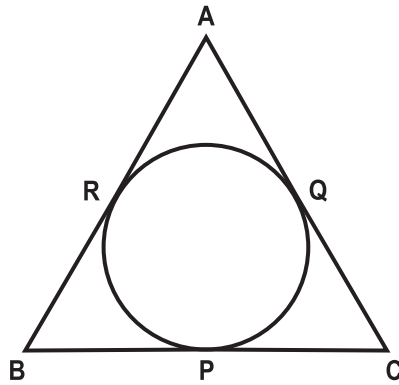


**Q10 :** The length of tangents drawn from an external point to circle are equal. Prove it. Use the result to solve the following: In the fig., AB and AC are two tangents to a circle with centre O from a point A outside the circle. Prove that PRQ is a tangent to circle at R.  $AP + PR = AQ + QR$ .

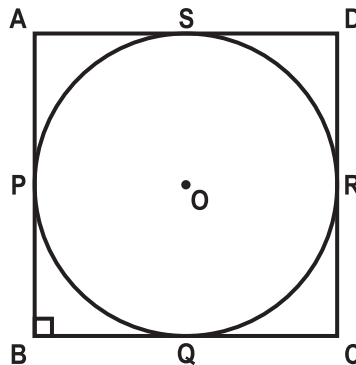


**Q11 :** Prove that the lengths of tangents drawn from an external point to a circle are equal. Using the above, prove the following: ABC is an isosceles triangle in which  $AB = AC$ , circumscribed about a circle, as shown in the fig. Prove that the base is bisected by the point of contact.

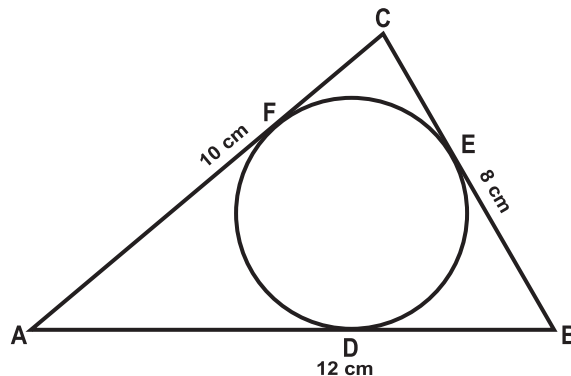
Fig.:-



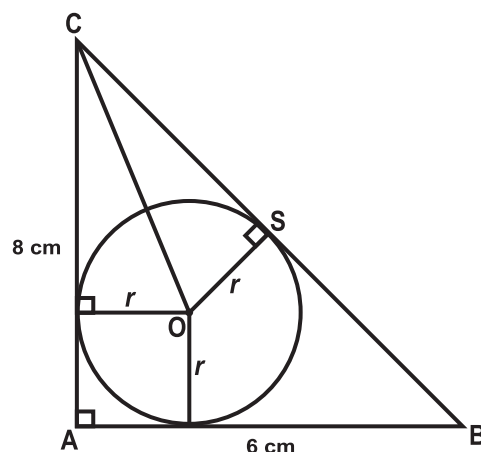
**Q12 :** In the fig., a circle is inscribed in a quadrilateral ABCD in which  $\angle B = 90^\circ$ . If AD = 23 cm, AB = 29 cm and DS = 5 cm, find the radius (r) of the circle.



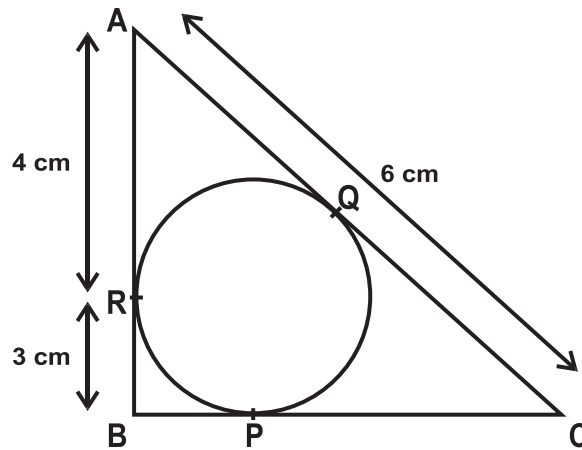
**Q13 :** A circle is inscribed in a  $\triangle ABC$  having sides 8 cm, 10 cm and 12 cm as shown in fig. Find AD, BE and CF.



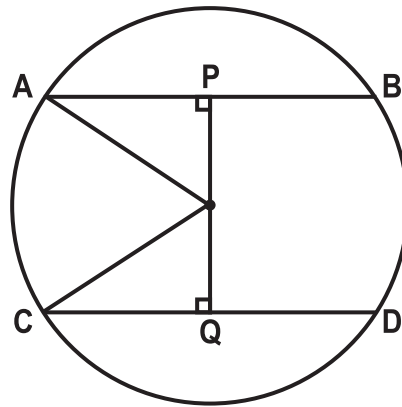
**Q14 :** In the given fig., ABC is a right-angled triangle, right angled at A, with AB=6 cm and AC = 8 cm. A circle with centre O has been inscribed inside the triangle. Calculate the value of r, the radius of the inscribed circle.



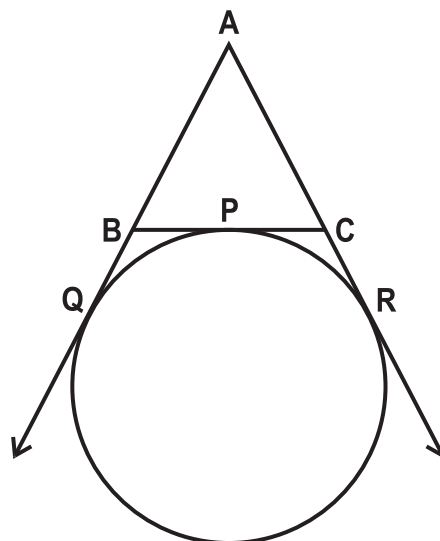
**Q15 :** In fig.,  $\triangle ABC$  is circumscribing a circle. Find the length of BC.



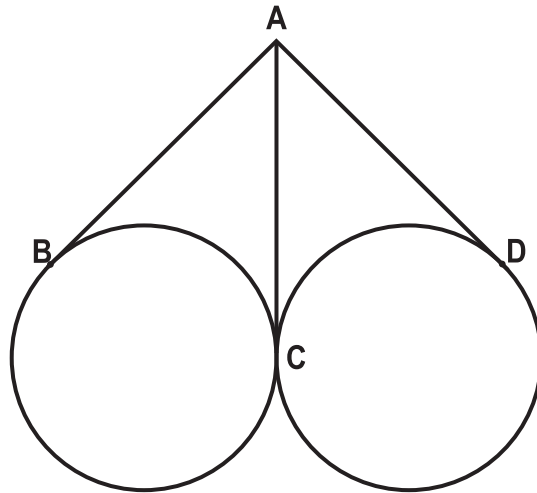
**Q16 :** In the fig., O is the centre of the circle with radius 5 cm,  $AB \parallel CD$ ,  $AB = 6$  cm. Find OP.



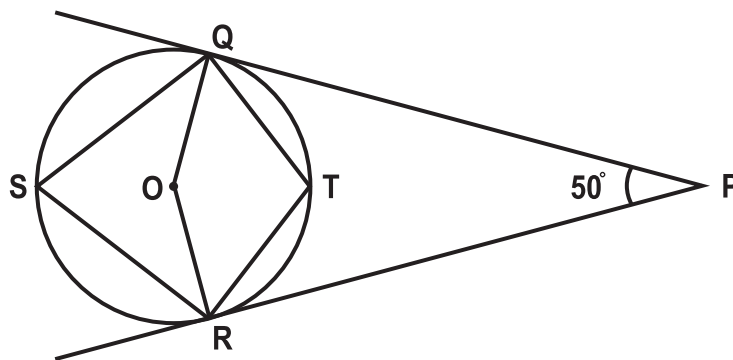
**Q17 :** In fig., a circle touches the side BC of  $\triangle ABC$  at P and touches AB and AC produced at Q and R respectively. If  $AQ = 5$  cm, find the perimeter of  $\triangle ABC$ .



**Q18 :** In the given fig., AB, AC and AD are tangents from the exterior point A to the circle which touches externally at C. If  $AB = 5$  cm, find AD.



**Q19 :** In the fig. given below, find  $\angle QSR$ .



**Q20 :**  $\triangle ABC$  is a right-angled at A. A circle is inscribed in it. The lengths of two sides containing the right angle are 12 cm and 5 cm. Find the radius of the incircle.

**Q21 :** Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

**Q22 :** Two tangents PA and PB are drawn to the circle with centre O, such that  $\angle APB = 120^\circ$ . Prove that  $OP = 2AP$ .

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