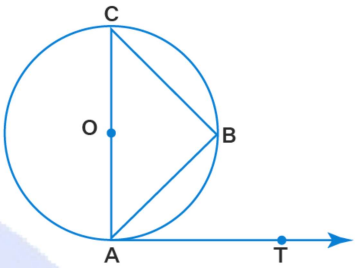
M.M.: 16 **Time: 30 min**

General Instructions:

(i) There are 9 questions in this paper. Each question carry 2 marks.

(ii) All questions are compulsory.

1. If AB is a chord of a circle with centre O, AOC is a diameter and AT is the tangent at A as shown in Fig. Prove that $\angle BAT = \angle ACB$.



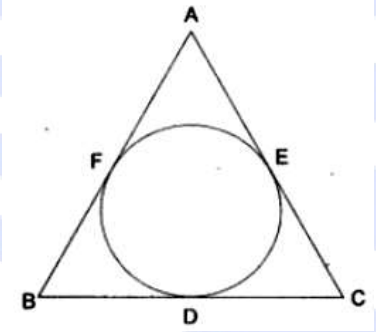
2. A line through the centre O of a circle of radius $7\,cm$ cuts the tangent, at a point P on the circle; at Q such that $PQ = 24\,cm$. Find O Q.

3. The lengths of two tangents drawn from an external point to a circle are equal.

4. In Fig. 8.25, if $AB = AC$, prove that $BE = EC$.

OR

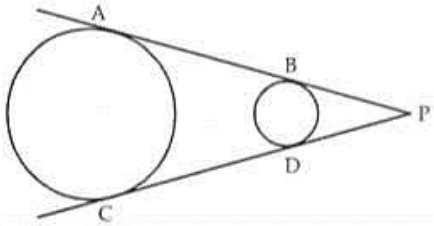
ABC is an isosceles triangle in which $AB = AC$, circumscribed about a circle, as shown in Fig. Prove that the base is bisected by the point of contact.



5. A circle touches all the four sides of a quadrilateral ABCD. Prove that:
   AB + CD = BC + DA.

6. PA and PB are tangents from P to the circle with centre O. At point M, drawn cutting PA at K and PB at N. Prove that $KN = AK + BN$.

7. In Figure, AB and CD are common tangents to two circles of unequal radii. Prove that $AB = CD$.



8. If all the sides of a parallelogram touch a circle, show that the parallelogram is a rhombus.

OR

Prove that a parallelogram circumscribing a circle is a rhombus.