

1. In Figure, if tangents PA and PB from an external point P to a circle with center O, are inclined to each other at an angle of  $80^\circ$ , then  $\angle AOB$  is equal to

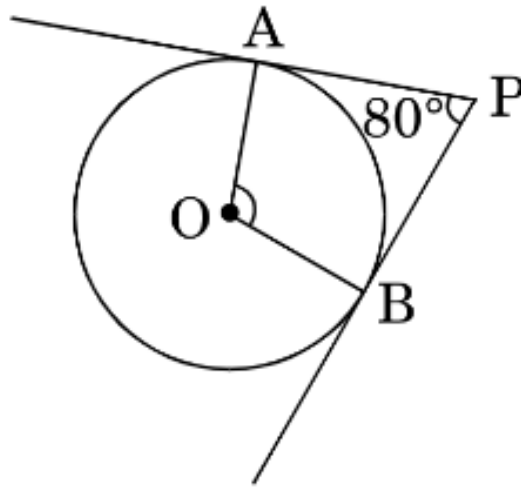
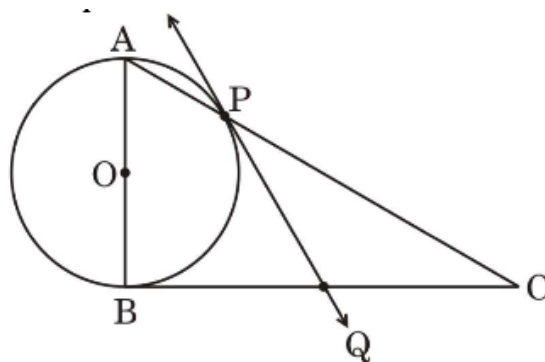


Figure 1:

- A.  $100^\circ$
  - B.  $60^\circ$
  - C.  $80^\circ$
  - D.  $50^\circ$
2. Two concentric circles are of radii 4cm and 3cm. Find the length of the chord of the larger circle which touches the smaller circle.
  3. In figure 1, a triangle ABC  $\angle B = 90^\circ$  is shown. Taking AB as diameter, a circle has been drawn intersecting AC at point P. Prove that the tangent drawn at point P bisects BC.



4. Prove that a parallelogram circumscribing a circle is a rhombus.

5. (a) In Figure 1, two circles with centres at  $O$  and  $O'$  of radii  $2r$  and  $r$  respectively, touch each other internally at  $A$ . A chord  $AB$  of the bigger circle meets the smaller circle at  $C$ . Show that  $C$  bisects  $AB$ .

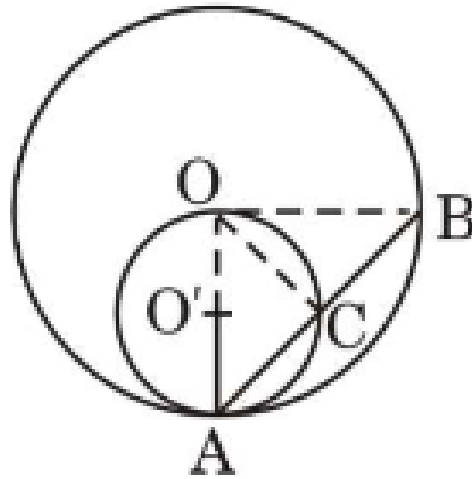


Figure 2:

- (b) In Figure 2,  $O$  is center of a circle of radius  $5\text{cm}$ .  $PA$  and  $BC$  are tangents to the circle at  $A$  and  $B$  respectively. If  $OP = 13\text{cm}$ , then find the length of  $PA$  and  $BC$ .

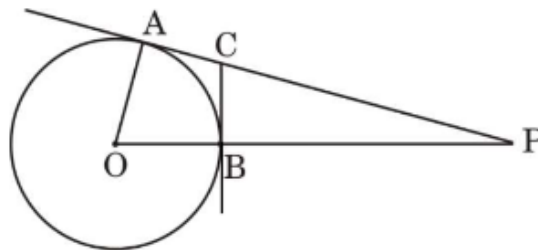


Figure 3:

6. In two concentric circles, a chord of length  $48\text{ cm}$  of the larger circle is a tangent to the smaller circle, whose radius is  $7\text{ cm}$ . Find the radius of the larger circle.
7. (a) If two circles touch each other externally, then prove that the point of contact lies on the line joining their centres.

**OR**

- (b) Prove that the lengths of two tangents drawn from an external point to a circle are equal.