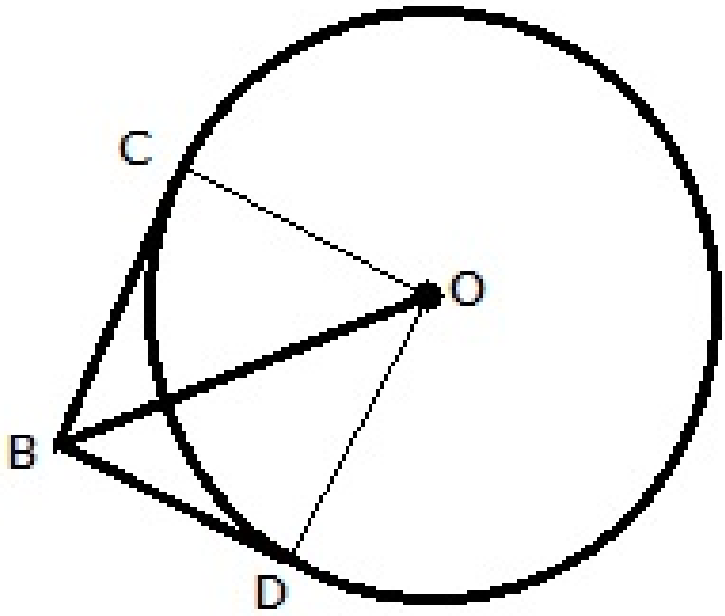
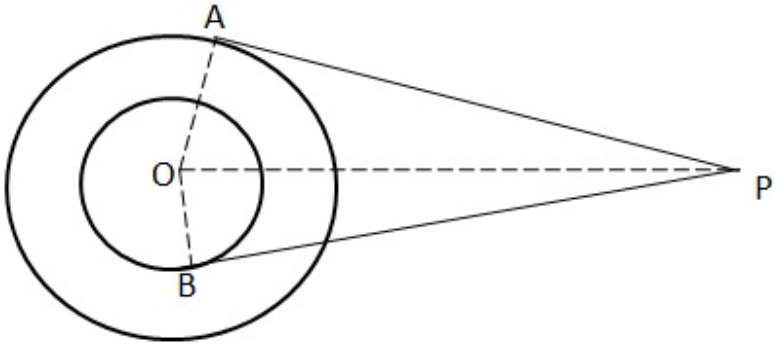
Exercise 12

Question 7:
Given: Two tangent segments BC and BD are drawn to a circle with centre O such that ∠CBD = 120°.
Join OB, OC and OD.



In triangle OBC,
∠OBC = ∠OBD = 60°
∠OCB = 90° (BC is tangent to the circle)
Therefore, ∠BOC = 30°
BC/OB = sin 30° = 1/2
⇒ OB = 2BC

Question 8:
Given O is the centre of two concentric circles of radii 4 cm and 6 cm respectively. PA and PB are tangents to the outer and inner circle respectively. PA = 10cm. Join OA, OB and OP.
Then, OB = 4 cm, OA= 6 cm and PA = 10 cm



In triangle OAP,

$$OP^2 = OA^2 + PA^2$$

$$= (6)^2 + (10)^2 = 136 \text{ cm}^2$$

In ΔOBP,

$$BP = \sqrt{OP^2 - OB^2} = \sqrt{136 - 16} \text{ cm}$$

$$= \sqrt{120} \text{ cm} = 10.9 \text{ cm}$$

Hence, BP = 10.9 cm

********** END **********