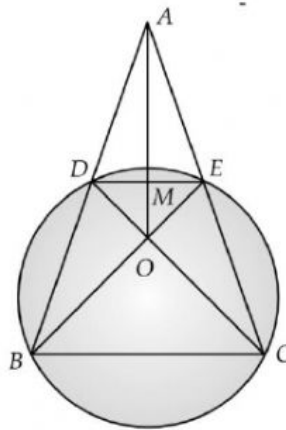# Advanced_Grade-9_Circles

Cyclic Quadrilateral

1. D and E are respectively the points on equal sides AB and AC of an isosceles triangle ABC such that B, C, E and D are concyclic, as shown in the given figure, if O is the point of intersection of CD and BE, prove that AO is the bisector of the line segment DE.


2. In the given figure, PQ is the diameter of the circle.
   If ∠PQR = 65°, ∠QPT = 60°, then find the measure of:
   (i) ∠QPR
   (ii) ∠PRS
   (iii) ∠PSR
   (iv) ∠PQT
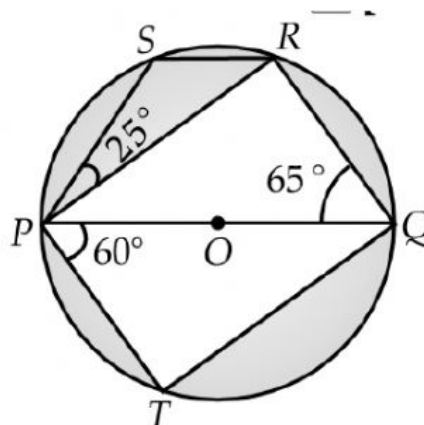
3. In the given figure ∠SPQ = 45°, ∠POT = 150° and O is the centre of circle. Find the measures of ∠RQT, ∠RTQ and ∠PUT.
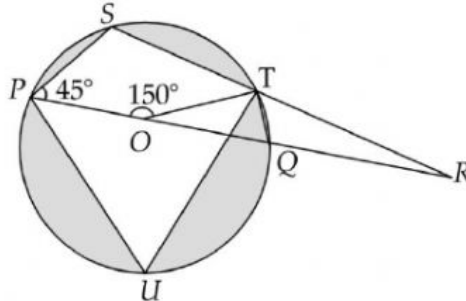

4. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.

5. In the given figure, B and E are points on line segments AC and DF respectively. Prove that AD ∥ CF.
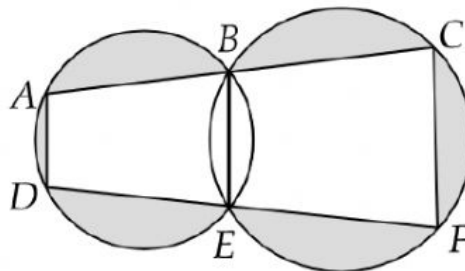
6. D and E are points on equal sides AB and AC of isosceles ABC such that AD = AE. Prove that the points B, C, E and D are concyclic.

7. In the given figure, ABDC is a cyclic quadrilateral in which AC ∥ BD.
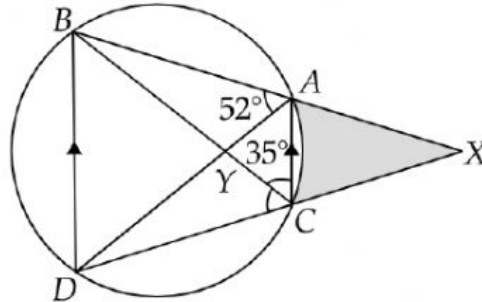
(i) If BAD = 52°, ∠BCA = 35°. Find ∠ACX.

(ii) Prove that ∠CBD = ∠ADB. Also prove that,
        DY = BY.

(iii)Prove that, ΔXBD is an isosceles triangle

(iv) Prove that, XA = XC