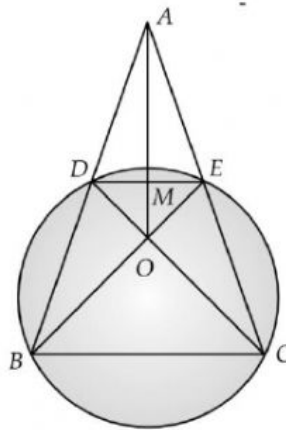


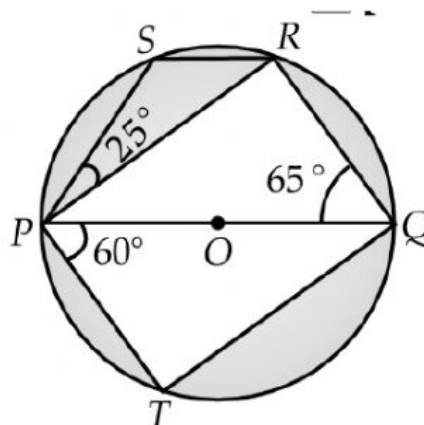
Advanced_Grade-9_Circles

Cyclic Quadrilateral

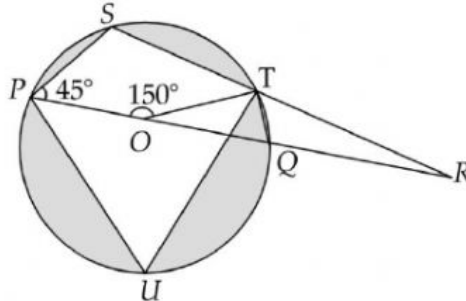
1. D and E are respectively the points on equal sides AB and AC of an isosceles triangle ABC such that B, C, E and D are concyclic, as shown in the given figure, if O is the point of intersection of CD and BE, prove that AO is the bisector of the line segment DE.



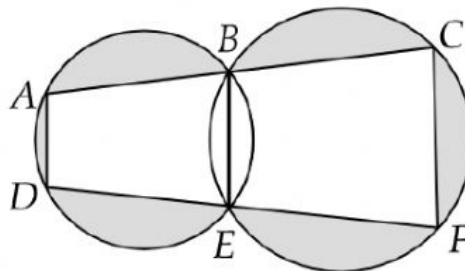
2. In the given figure, PQ is the diameter of the circle. If $\angle PQR = 65^\circ$, $\angle QPT = 60^\circ$, then find the measure of:
 - (i) $\angle QPR$
 - (ii) $\angle PRS$
 - (iii) $\angle PSR$
 - (iv) $\angle PQT$



3. In the given figure $\angle SPQ = 45^\circ$, $\angle POT = 150^\circ$ and O is the centre of circle. Find the measures of $\angle RQT$, $\angle RTQ$ and $\angle PUT$.

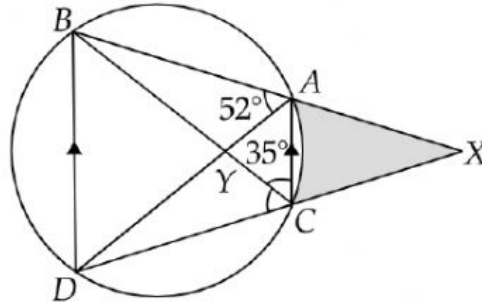


4. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.
5. In the given figure, B and E are points on line segments AC and DF respectively. Prove that $AD \parallel CF$.



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 $AC \parallel BD$.



- (i) If $\angle BAD = 52^\circ$, $\angle BCA = 35^\circ$. Find $\angle ACX$.
- (ii) Prove that $\angle CBD = \angle ADB$. Also prove that, $DY = BY$.
- (iii) Prove that, $\triangle XBD$ is an isosceles triangle
- (iv) Prove that, $XA = XC$