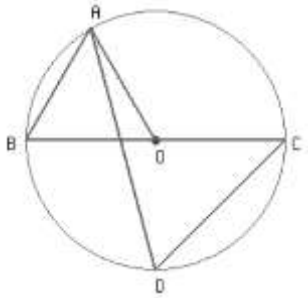
INDIAN SCHOOL AL WADI AL KABIR

WORKSHEET 2025-26

CLASS IX CIRCLES

Questions of 1 mark each

Q.1 If BC is a diameter of the circle and ∠BAO = 60°. Then the value of ∠ADC is

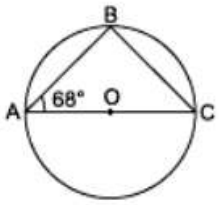


A) 60°	B) 70°	C) 80°	D) 90°

Q.2 AD is a diameter of a circle and AB is a chord. If AD = 34 cm, AB = 30 cm, the distance of AB from the centre of the circle is:

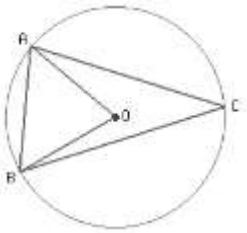
A)17 cm	B)15 cm	C)8 cm	D)4 cm

Q.3 In the given figure, O is centre of the circle, ∠BAO = 68°, AC is diameter of the circle, then measure of ∠BCO is



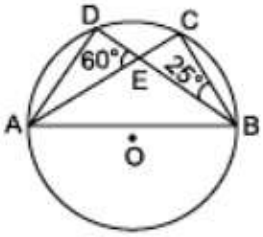
A) 22°	B) 33°	C) 44°	D) 144°

Q.4 If O is center of the circle and ∠OAB = 55°, the measure of ∠ACB is:



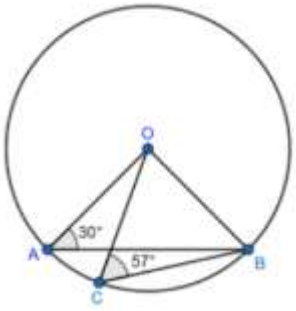
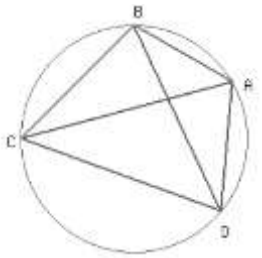
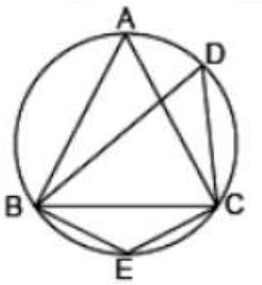
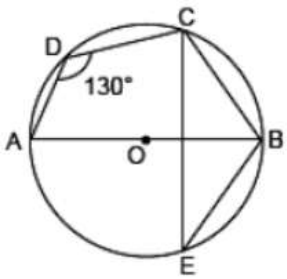
A) 30°	B) 35°	C) 45°	D) 70°

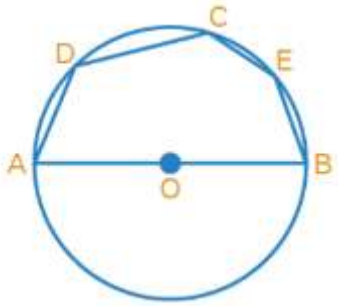
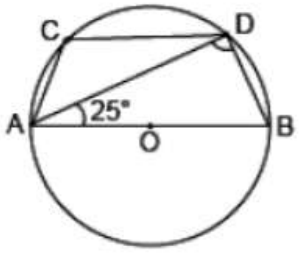
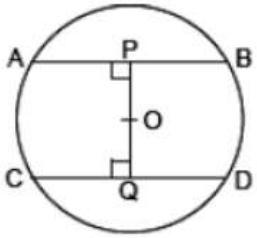
Q.5 In the given figure, O is the centre of the circle, ∠CBE = 25° and ∠DEA = 60°. The measure of ∠ADB is

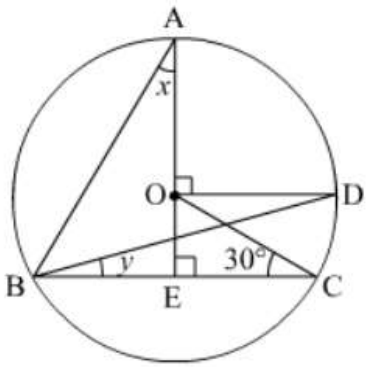


A) 90°	B) 85°	C) 95°	D) 70°

<table>
<tr><td>Q.6</td><td colspan="4">A chord of a circle is equal to its radius. Then the angle subtended by this chord at a point in the major arc is</td></tr>
<tr><td></td><td>A) 90°</td><td>B) 85°</td><td>C) 75°</td><td>D) 30°</td></tr>
<tr><td>Q.7</td><td colspan="2">Assertion (A): In the given figure, ∠OAB = 30° and ∠OCB = 57°. then ∠BOC = 66° and ∠AOC = 54°

Reason (R): Angle in a semi-circle is right angle.</td><td colspan="2"> 
</td></tr>
<tr><td></td><td colspan="4">Questions of 2 mark each</td></tr>
<tr><td>Q.8</td><td colspan="4">If BM and CN are the perpendiculars drawn on the sides AC and AB of the triangle ABC, prove that the points B, C, M and N are concyclic.</td></tr>
<tr><td>Q.9</td><td colspan="4">In the following circle If ∠BAD = 115° and ∠ABD = 35°, Determine the angle ∠ACB.
  </td></tr>
<tr><td>Q.10</td><td colspan="4">In the given figure, △ ABC is equilateral. Find ∠BDC and ∠BEC.
 
</td></tr>
<tr><td></td><td colspan="4">Questions of 3 marks each</td></tr>
<tr><td>Q.11</td><td colspan="4">In the given figure, ∠ADC = 130° and chord BC = chord BE. Find ∠CBE if AB is perpendicular to CE.
 
</td></tr>
</table>

Q.12	In the given figure, AOB is a diameter and ∠ADC = 120°, then determine the angle ∠CAB 
Q.13	In the given figure, AB is diameter of the circle with centre O and CD‖AB. If $\angle DAB = 25°$, then find the measure of ∠CAD. 
Q.14	If a line is drawn parallel to the base of an isosceles triangle to intersect its equal sides, prove that the quadrilateral so formed is cyclic.
Q.15	In the given figure, O is the centre of the circle with radius 5 cm. $OP \perp AB, OQ \perp CD, AB \| CD, AB = 8$ cm and $CD = 6$ cm. Determine PQ. 
Q.16	A quadrilateral ABCD is inscribed in a circle such that AB is a diameter and $\angle ADC = 130°$. Find ∠BAC.
Q.17	Two chords AB and AC of a circle subtends angles equal to 90° and 150°, respectively at the centre. Find ∠BAC, if AB and AC lie on the opposite sides of the centre.
	Questions of 5 marks each
Q.18	Prove that the angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.
Q.19	In the given figure O is the centre of the circle, $\angle BCO = 30°$. If AE bisects ∠BAC , then find x and y.



CASE STUDY QUESTION (4 MARK)

Q.20 Aditya visits a circular park and notices two triangular ponds with a common vertex at the centre. At home, he draws a circle of radius 10 cm. Inside the circle, he draws two chords AB and CD such that their perpendicular distances from the centre are 6 cm and 8 cm respectively.

Based on this construction, answer the following:

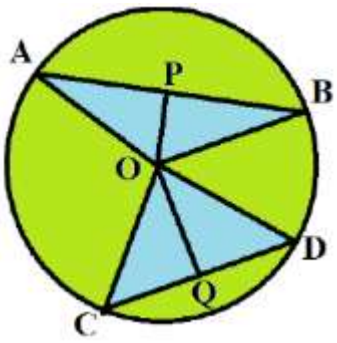
(i) If $\angle BOA = 55°$, then find the measure of $\angle OAB$

(ii) If CD equals radius of the given circle, then find the measure of $\angle OCD$

(iii) What is the length of CD? (2)

OR

If BC is a diameter of a circle of centre O and OD is perpendicular to the chord AB of a circle, then show that CA = 2OD.

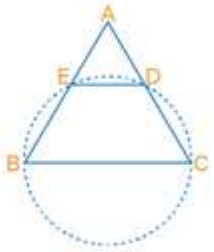
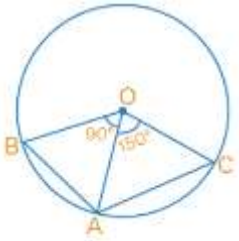
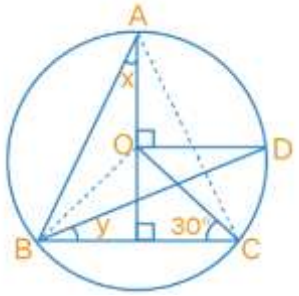


****

ANSWER KEY

Q.1	A) 60°	**Q.2**	C)8 cm	**Q.3**	A) 22°
Q.4	B) 35°	**Q.5**	C) 95°	**Q.6**	D) 30°
Q.7	B)	**Q.8**	Since $\angle BMC = \angle BNC = 90°$, and BC subtends equal angles at M and N on the same side, points B, C, M, and N are concyclic.	**Q.9**	In $\triangle ABD$, the sum of angles is 180°. Therefore, $\angle ADB = 180° - 115° - 35° = 30°$ Angles subtended by the same arc are equal. Thus, $\angle ACB = \angle ADB = 30°$

Q.10	In equilateral $\triangle ABC$, $\angle A = \angle B = \angle C = 60°$. $\angle BDC = \angle BAC = 60°$ (angles in same segment BC). Since BDCE is cyclic, $\angle BDC + \angle BEC = 180° \Rightarrow \angle BEC = 180° - 60° = 120°$. 60 and 120.	**Q.11**	In cyclic quadrilateral ABCD, $\angle ADC = 130° \Rightarrow \angle CBA = 50°$ (opposite angles sum to 180°). Given $BC = BE \Rightarrow \angle CBO = \angle OBE = 50°$ by triangle congruence. Thus $\angle CBE = \angle CBO + \angle OBE = 100°$.
Q.12	Join CA and CB. Given ADCB cyclic, $\angle ADC = 120° \Rightarrow$ opposite angle $\angle CBA = 60°$. AB is a diameter $\Rightarrow \angle ACB = 90°$ (angle in	**Q.13**	In the circle with diameter AB, $\angle DAB = 90°$ (angle in semicircle). Given $\angle DAB = 25°$ $\angle DBA = 180° - (25° + 90°) = 65°$,

	semicircle). In $\triangle ACB: \angle CAB = 180° - (60° + 90°) = 30°$.		$\angle A = 115°$ (opposite angles sum to $180°$). $\angle A + \angle C = 180°$ (Same side of the transversal). $\angle C = 40°$. $\angle CAD = 40° - 25° = 15°$
Q.14	Since $AB = AC$,$\triangle ABC$ is isosceles $\Rightarrow \angle ACB = \angle ABC$. Given $DE \parallel BC$, Adding $\angle EDC$ to both sides: $\angle ACB + \angle EDC = \angle ABC + \angle EDC$. But $\angle ACB + \angle EDC = 180°$ (Same side of the transversal),so $\angle ABC + \angle EDC = 180°$. $\Rightarrow$ BCDE is cyclic.		
Q.15	$OA = OC = 5$ cm; perpendicular bisectors give $AP = 3$ cm, $CQ = 4$ cm. From right triangles, $OP = \sqrt{(5^2 - 3^2)} = 4$ cm and $OQ = \sqrt{(5^2 - 4^2)} = 3$ cm. Therefore, $PQ = OP + OQ = 7$ cm.	**Q.16**	In cyclic quadrilateral ABCD, $\angle ADC = 130°$, so $\angle ABC = 180° - 130° = 50°$. Since AC is a diameter, $\angle ACB = 90°$. In $\triangle ABC$, $\angle BAC = 180° - (90° + 50°) = 40°$.
Q.17	In $\triangle OAB$, $OA = OB$ and $\angle AOB = 90°$, so $\angle OAB = (180° - 90°)/2 = 45°$. In $\triangle AOC$, $OA = OC$ and $\angle AOC = 150°$, so $\angle OAC = (180° - 150°)/2 = 15°$. Thus, $\angle BAC = \angle OAB + \angle OAC = 45° + 15° = 60°$.		**Q.18** Proof
Q.19	In $\triangle BOC$, $OB = OC$ and $\angle OBC = \angle OCB = 30°$, so $\angle BOC = 180° - 60° = 120°$. Then $\angle BAC = 1/2\angle BOC = 60°$. Since AE bisects $\angle BAC$, $\angle BAE = 30° = x$. In $\triangle ABE$, $\angle EBA = 180° - (90° + 30°) = 60°$, so $y = 60° - 1/2\angle AOD = 60° - 45° = 15°$.		
Q.20	(i) $\angle OAB = 62.5°$ (ii) $\angle OCD = 60°$ (iii)$CD = 12$ cm OR In $\triangle ABC$, BC is diameter, so O is midpoint of BC. Since $OD \perp AB$, D is midpoint of AB. Thus $OD \parallel AC$ and $OD = \frac{1}{2}AC$ by midpoint theorem. Hence $CA = 2 \cdot OD$.		

****