INDIAN SCHOOL AL WADI AL KABIR

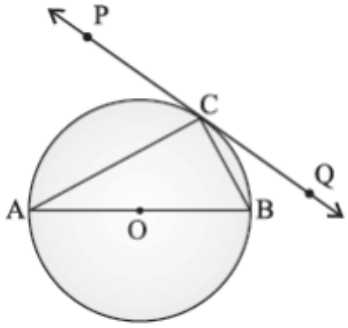
Department: Mathematics

Class X **Worksheet – Circles**

29-10-2022

Questions of 1 mark each

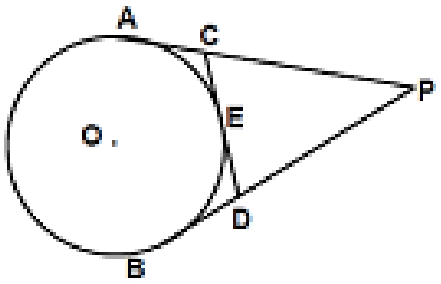
Q.1. In figure, PQ is a tangent at a point C to a circle with centre O. If AB is a diameter and ∠CAB = 30°, find ∠PCA.



A	30°	B	60°	C	90°	D	50°

Q.2. From an external point P, tangents PA and PB are drawn to a circle with centre O.

If CD is the tangent to the circle at a point E and PA = 14 cm, find the perimeter of Δ PCD.

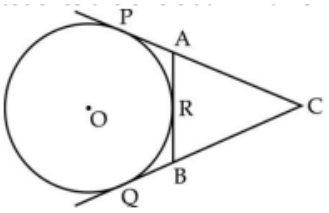


A	28 cm	B	27 cm	C	26 cm	D	25 cm

Q.3. Two concentric circles are of radii 10 cm and 8 cm, then the length of the chord of the larger circle which touches the smaller circle is

A	6cm	B	12cm	C	18cm	D	9cm

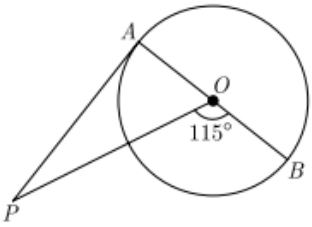
Q.4. In the given fig, CP and CQ are tangents to a circle with centre O and line segment AB touches the circle at R with CP = 11cm, AR = 3cm, BC = 7cm, the BR is



A	4cm	B	3cm	C	5cm	D	10cm

Q.5. In the given figure, PA is a tangent from an external point P to a circle with centre O.

If ∠POB = 115°, then measure of ∠APO is



A	20°	B	35°	C	25°	D	65°

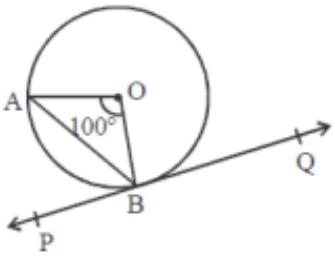
Q.6. The length of the tangent drawn from a point 8 cm away from the centre of a circle of radius 6 cm is

A	$\sqrt{7}$cm	B	$2\sqrt{7}$cm	C	10cm	D	5cm

Q.7. If the angle between two tangents drawn from an external point P to a circle of radius 'a' and centre O is 60°, then the length of OP is

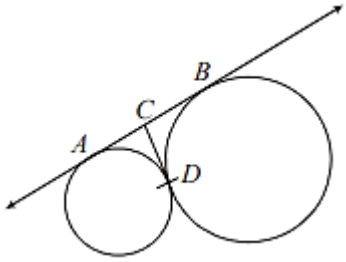
A	$\sqrt{3}$a	B	2a	C	4a	D	$\frac{1}{2}$ a

Q.8. In figure, PQ is tangent to the circle with centre at O, at the point B. If ∠AOB = 100°, then ∠ABP is



A	30°	B	60°	C	40°	D	50°

Q.9. In the figure, AB and CD are common tangents to circle which touch each other at D. If AB = 8 cm, then the length of CD is



A	4cm	B	6cm	C	8cm	D	3cm

Q.10. **DIRECTION:** In the given question, a Statement of Assertion (A) is followed by a Statement of Reason (R). Choose the correct option.

Statement A (Assertion): If two tangents are drawn to a circle from an external point, then they subtend equal angles at the centre.

Statement R(Reason): A parallelogram circumscribing a circle is a rhombus.

(A)Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).

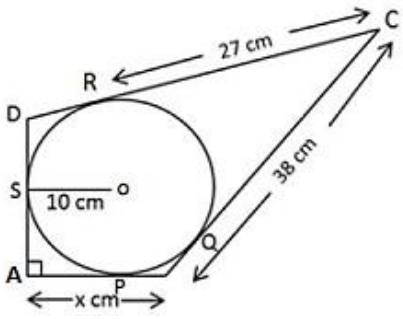
(B) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).

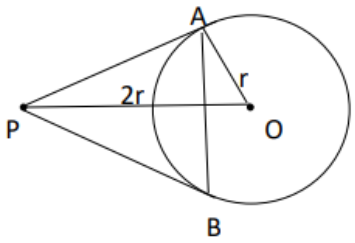
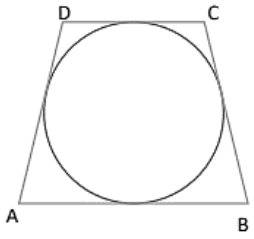
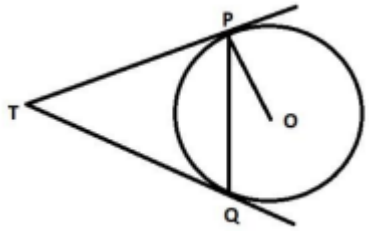
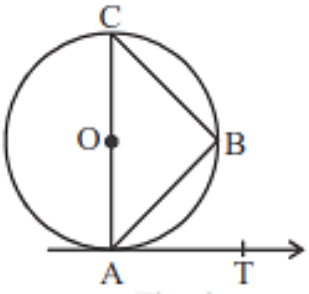
(C) Assertion (A) is true but reason (R) is false.

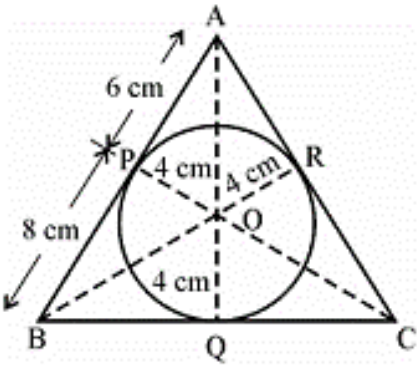
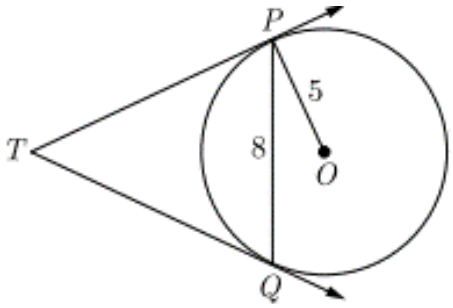
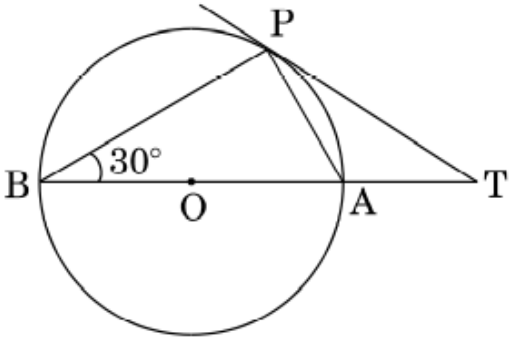
(D) Assertion (A) is false but reason (R) is true.

Questions of 2 marks each

Q.11. In the figure, quadrilateral ABCD is circumscribing a circle with centre O and AD⊥AB. If radius of incircle is 10cm, then find the value of x.

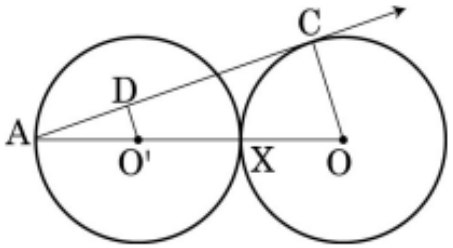


Q.12.	From a point P, two tangents PA and PB are drawn to a circle C (0, r). If OP = 2r, then find $\angle APB$. What type of triangle is APB? 
Q.13.	In the given figure, a circle is inscribed in the quadrilateral ABCD. Given AB=6cm, BC=7cm and CD=4cm. Find AD. 
	Questions of 3 marks each
Q.14.	Two tangents TP and TQ are drawn to a circle with centre O from an external point T. Prove that $\angle PTQ = 2\angle OPQ$. 
Q.15.	In the figure, AB is a chord of circle with centre O, AOC is diameter and AT is tangent at A. Prove that ∠BAT = ∠ACB. 

Q.16.	In the figure, the radius of incircle of ΔABC of area $84cm^2$ is 4cm and the lengths of the segments AP and BP into which the side AB is divided by the point of contact are 6cm and 8cm. Find the lengths of the sides AC and BC. 
Questions of 5 marks each	
Q.17.	In the figure, PQ is a chord of length 8 cm of a circle of radius 5 cm and centre O. The tangents at P and Q intersect at point T. Find the length of TP. 
Q.18.	In the figure, O is the centre of the circle and TP is the tangent to the circle from an external point T. If ∠ PBT = 30°, prove that BA: AT = 2: 1. 

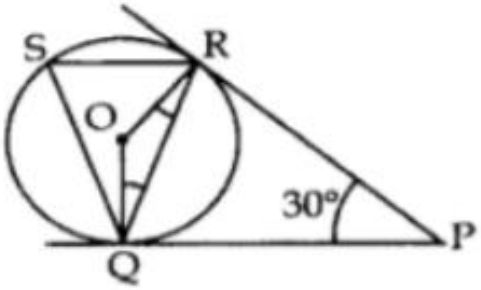
Q.19. In the figure, two equal circles O and O′, touch each other at X. OO′ produced meets the circle with centre O′at A. AC is tangent to the circle with centre O at the point C. O′D is perpendicular to AC.

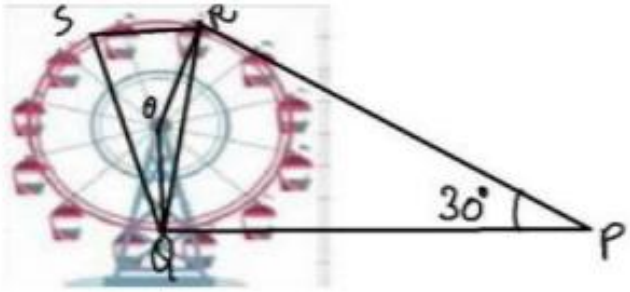
Find the value of $\frac{DO'}{CO}$.



Case study-based (4 marks)

Q.20. A Ferris wheel is an amusement ride consisting of a rotating upright wheel with multiple passenger-carrying components attached to the rim in such a way that as the wheel turns, they are kept upright, usually by gravity. After taking a ride in Ferris wheel, Aarti came out from the crowd and was observing her friends who were enjoying the ride. She was curious about the different angles and measures that the wheel will form. She forms the figure as given below.





(i) In the given figure, find ∠ROQ.

A	60°	B	100°	C	150°	D	90°

(ii) Find ∠RQP

A	75°	B	60°	C	30°	D	90°

(iii) Find ∠RSQ

A	60°	B	75°	C	100°	D	30°

(iv)	Find ∠ORP							
	A	90°	B	70°	C	100°	D	60°

ANSWERS							
Q.1	B	**Q.2**	A	**Q.3**	B	**Q.4**	A
Q.5	C	**Q.6**	B	**Q.7**	B	**Q.8**	D
Q.9	A	**Q.10**	B	**Q.11**	21 cm	**Q.12**	60°, equilateral
Q.13	3cm	**Q.16**	15cm, 13cm	**Q.17**	$\frac{20}{3}$ cm	**Q.19**	$\frac{1}{3}$
Q.20(i)	C	**(ii)**	A	**(iii)**	B	**(iv)**	A