

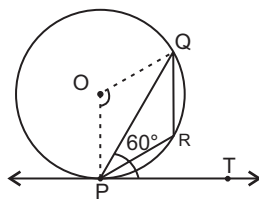
OBJECTIVE SECTION

[BASIC/STANDARD]

I. MULTIPLE CHOICE QUESTIONS

1. In the figure, PQ is a chord of circle and PT is the tangent at P such that $\angle QPT = 60^\circ$, then $\angle POQ$ is equal to:

(a) 135° (b) 150°
(c) 120° (d) 110°

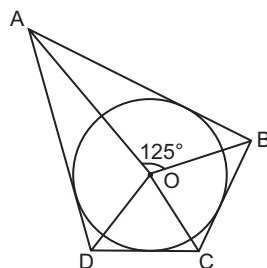


2. If the radii of two concentric circles are 4 cm and 5 cm, then the length of each chord of one circle which is tangent to the other circle is:

(a) 3 cm (b) 6 cm
(c) 9 cm (d) 1 cm

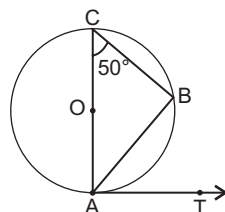
3. In the figure, if $\angle AOB = 125^\circ$, then $\angle COD$ is equal to :

(a) 62.5° (b) 45°
(c) 35° (d) 55°



4. In the figure, AB is a chord of circle and AOC is its diameter such that $\angle ACB = 50^\circ$. If AT is the tangent to the circle at the point A, then $\angle BAT$ is equal to

(a) 65° (b) 60°
(c) 50° (d) 40°

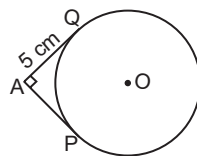


5. If the angle between two radii of a circle is 130° , then the angle between the tangents at the ends of the radii is :

(a) 90° (b) 50° (c) 70° (d) 40°

6. In the figure, the pair of tangents AP and AQ drawn from an external point A to a circle with centre O are perpendicular to each other and length of each tangent is 5 cm. Then radius of the circle is:

(a) 10 cm (b) 7.5 cm
(c) 5 cm (d) 2.5 cm



7. If two tangents, inclined at an angle of 60° are drawn to a circle of radius 3 cm, then length of each tangent is equal to

(a) $\frac{3}{2}\sqrt{3}$ cm

(b) 6 cm

(c) 3 cm

(d) $3\sqrt{3}$ cm

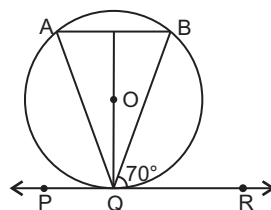
8. In the figure, if PQR is the tangent to a circle at Q whose centre is O. AB is a chord parallel to PR and $\angle BQR = 70^\circ$, then $\angle AQB$ is equal to:

(a) 20°

(b) 40°

(c) 35°

(d) 45°



9. From a point P which is at a distance of 13 cm from the centre O of a circle of radius 5 cm, the pair of tangents PQ and PR to the circle are drawn. Then the area of the quadrilateral PQOR is:

(a) 60 cm^2

(b) 65 cm^2

(c) 30 cm^2

(d) 32 cm^2

10. At one end A of a diameter AB of a circle of radius 5 cm, tangent XAY is drawn to the circle. The length of the chord CD parallel to XY and at a distance 8 cm from A is:

(a) 4 cm

(b) 5 cm

(c) 6 cm

(d) 8 cm

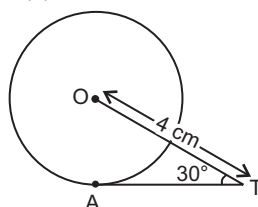
11. In the figure, AT is a tangent to the circle with centre O such that $OT = 4$ cm and $\angle OTA = 30^\circ$. Then AT is equal to:

(a) 4 cm

(b) 2 cm

(c) $2\sqrt{3}$ cm

(d) $4\sqrt{3}$ cm



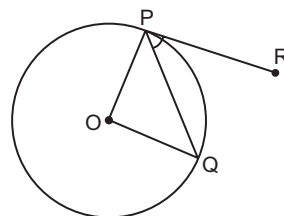
12. In the figure, if O is the centre of a circle. PQ is a chord and the tangent PR at P makes an angle of 50° with PQ, then $\angle POQ$ is equal to:

(a) 100°

(b) 80°

(c) 90°

(d) 75°



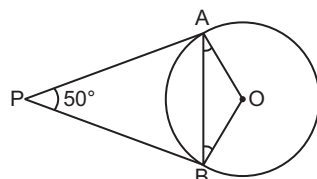
13. In the figure, if PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then $\angle OAB$ is equal to:

(a) 25°

(b) 30°

(c) 40°

(d) 50°



14. If tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 80° , then $\angle POA$ is equal to:

(a) 50°

(b) 60°

(c) 70°

(d) 80°

15. In TP and TQ are two tangents to a circle with centre O so that $\angle POQ = 110^\circ$, then $\angle PTQ$ is equal to:

(a) 25°

(b) 70°

(c) 40°

(d) 50°

16. PQ is a tangent to a circle with centre O at the point P. If $\angle OPQ$ is an isosceles triangle, then $\angle OQP$ is equal to:

(a) 30°

(b) 45°

(c) 60°

(d) 90°

17. Two circles touch each other externally at C and AB is a common tangent to the circles. Then $\angle APB$ is equal to

(a) 60°

(b) 45°

(c) 30°

(d) 90°

18. ABC is a right triangle, right angled at B such that $BC = 6$ cm and $AB = 8$ cm. A circle with centre O is inscribed in $\triangle ABC$. The radius of the circle is:

- (a) 1 cm (b) 2 cm (c) 3 cm (d) 4 cm

19. PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR = 120^\circ$, then $\angle OPQ$ is:

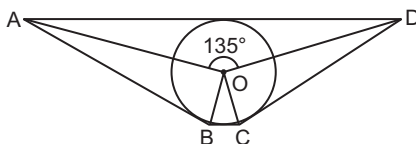
- (a) 60° (b) 45° (c) 30° (d) 90°

20. If four sides of quadrilateral ABCD are tangential to a circle, then:

- (a) $AC + AD = BD + CD$ (b) $AB + CD = AC + BD$
(c) $AB + CD = AC + BC$ (d) $AC + AD = BC + DB$

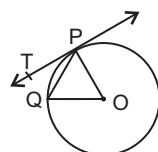
21. In the figure, if O is the centre of the circle and $\angle AOD = 135^\circ$, then $\angle BOC =$

- (a) 60° (b) 55°
(c) 50° (d) 45°



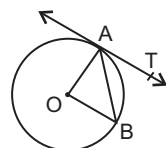
22. In the figure, O is the centre of a circle, PQ is a chord and PT is the tangent at P. If $\angle POQ = 70^\circ$, then $\angle TPQ =$

- (a) 25° (b) 30°
(c) 28.5° (d) 35°



23. In the figure, O is the centre of the circle, AB is a chord and AT is the tangent at point A. If $\angle AOB = 100^\circ$, then $\angle BAT =$

- (a) 30° (b) 40°
(c) 50° (d) 100°

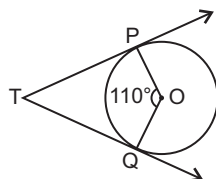


24. Point P is 26 cm away from the centre O of a circle and the length PT of the tangent drawn from P to the circle is 24 cm. The radius of the circle is :

- (a) 7 cm (b) 9 cm
(c) 10 cm (d) 12 cm

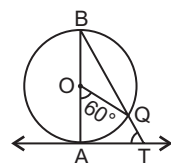
25. In the figure, TP and TQ are two tangents to a circle with centre O such that, $\angle POQ = 110^\circ$, the value of $\angle PTQ$ is : [CBSE (SP) 2019]

- (a) 60° (b) 65°
(c) 70° (d) 75°



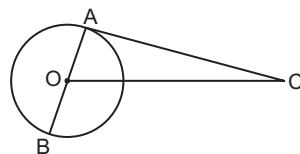
26. In the figure, AB is the diameter of a circle with centre O and AT is a tangent. If $\angle AOQ = 60^\circ$, then $\angle ATQ =$

- (a) 60° (b) 50.5°
(c) 49° (d) 30°



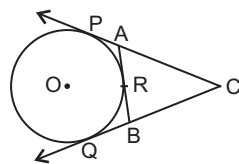
27. In the figure, AOB is a diameter of a circle with centre O and AC is a tangent to the circle at A. If $\angle BOC = 130^\circ$, then $\angle ACO =$

- (a) 35° (b) 38°
(c) 120° (d) 40°



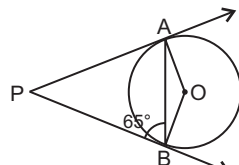
28. In the figure, CP and CQ are tangents to a circle with centre O. ARB is another tangent touching the circle at R. If CP = 11 cm and BC = 7 cm, then the length of BR is :

(a) 3.5 cm (b) 4 cm
(c) 3 cm (d) 11 cm



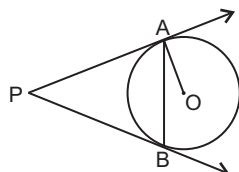
29. In the figure, PA and PB are two tangents from an external point P to a circle with centre O. If $\angle PBA = 65^\circ$, then $\angle OAB$:

(a) 15° (b) 25°
(c) 35° (d) 45°



30. In the figure, PA and PB are tangents to the circle with centre O. If $\angle APB = 60^\circ$, then $\angle OAB$:

(a) 40° (b) 30°
(c) 25° (d) 20°

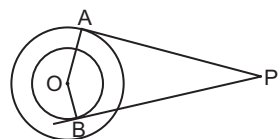


31. Two concentric circles are of radii 7 cm and r cm respectively, where $r > 7$. A chord of the larger circle of length 48 cm touches the smaller circle, then the value of r is :

(a) 30 cm (b) 28 cm (c) 25 cm (d) 20 cm

32. Tangents PA and PB are drawn from an external point P to two concentric circles with centre O and radii 8 cm and 5 cm respectively, as shown in the figure. If AP = 15 cm, then the length of BP is :

(a) $2\sqrt{33}$ (b) $2\sqrt{66}$ (c) $2\sqrt{11}$ (d) $2\sqrt{35}$

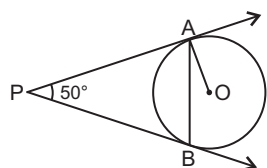


33. PA and PB are two tangents drawn from an external point P to a circle with centre C and radius 4 cm. If $PA \perp PB$, then find the length of each tangent

(a) 4 cm (b) 3 cm
(c) 3.5 cm (d) None of these

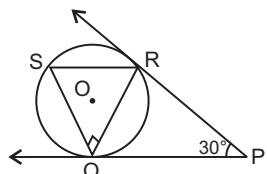
34. In the figure, PA and PB are tangents to the circle with centre O such that $\angle APB = 50^\circ$, then the measure of $\angle OAB$ =

(a) 37° (b) 36°
(c) 50° (d) 25°



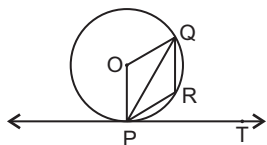
35. Tangents PQ and PR are drawn from an external point P to a circle with centre O, such that $\angle RPQ = 30^\circ$. A chord RS is drawn parallel to the tangent PQ. Then $\angle RQS$ =

(a) 40° (b) 30°
(c) 25° (d) 20°



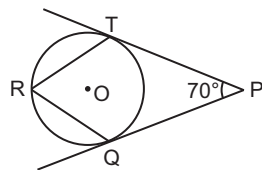
36. In the figure, PQ is a chord of a circle with centre O and PT is a tangent. If $\angle QPT = 60^\circ$, then $\angle PRQ$ =

(a) 130° (b) 120°
(c) 110° (d) 100°



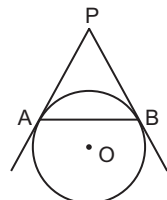
37. In the figure, O is the centre of the circle. PT and PQ are tangents to the circle from an external point P. If $\angle TPQ = 70^\circ$, then $\angle TRQ$ is :

(a) 60° (b) 58.5°
(c) 55° (d) 50°



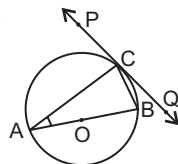
38. In the figure, PA and PB are tangents to a circle with centre O, such that $AP = 5$ cm and $\angle APB = 60^\circ$, then the length of chord AB is :

(a) 9 cm (b) 5 cm
(c) 4.5 cm (d) 4 cm



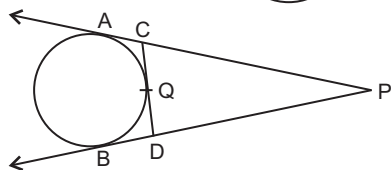
39. In the figure, PQ is a tangent at a point C to a circle with centre O. If AB is a diameter and $\angle CAB = 30^\circ$, then $\angle PCA =$

(a) 60° (b) 58°
(c) 57° (d) 56°



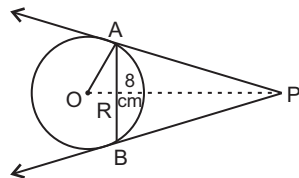
40. In the given figure, PA and PB are tangents to the circle from an external point P. CD is another tangent touching the circle at Q. If $PA = 12$ cm, $QC = QD = 3$ cm, then $PC + PD$ is :

(a) 22 cm (b) 20 cm
(c) 19 cm (d) 18 cm



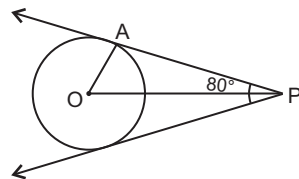
41. In the figure, AB is a chord of length 8 cm of a circle of radius 5 cm. The tangents to the circle at A and B intersect at P. The length of AP is :

(a) $\frac{13}{20}$ cm (b) $\frac{20}{3}$ cm
(c) $\frac{20}{13}$ cm (d) $\frac{3}{20}$ cm



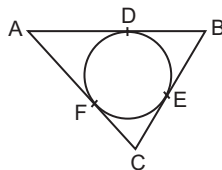
42. In the figure, tangents PA and PB from a point P to a circle with centre O are inclined to each other at an angle of 80° , then $\angle POA$ is :

(a) 30° (b) 40°
(c) 50° (d) 60°



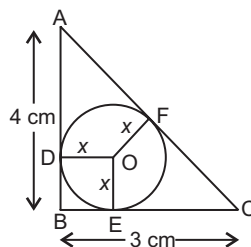
43. In the given figure, if $AD = 16$ cm, $CF = 9$ cm and $BE = 8$ cm, then perimeter of the triangle is :

(a) 60 cm (b) 62 cm
(c) 64 cm (d) 66 cm

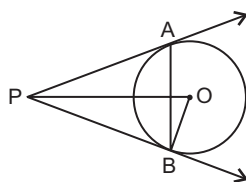
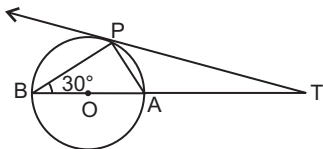


44. ABC is a right triangle right angled at B with $BC = 3$ cm and $AB = 4$ cm. A circle with centre O and radius x cm has been inscribed in $\triangle ABC$. The value of x is :

(a) 1 cm (b) 2 cm
(c) 3 cm (d) 4 cm



45. The length of the tangent drawn to a circle of radius 7 cm from a point 25 cm away from the centre is :
 (a) 22 cm (b) 23 cm (c) 24 cm (d) 25 cm
46. In a circle with centre O, PA and PB are the tangents to the circle. If $\angle AOB = 125^\circ$, then $\angle APB$ is :
 (a) 55° (b) 60° (c) 65° (d) 65.5°
47. If all the sides of a parallelogram touch a circle, then the parallelogram is a :
 (a) a rectangle (b) a rhombus (c) a square (d) None
48. In the given figure, O is the centre of the circle and TP is the tangent to the circle from an external point T. If $\angle PBT = 30^\circ$, then $\angle PAT$ is :
 (a) 80° (b) 110°
 (c) 120° (d) 135°
49. If an external point of a circle is at a distance equal to the diameter of the circle from the centre of the circle, the length of the tangent drawn from the external point is :
 (a) $3r$ (b) $4r$ (c) $5r$ (d) $\sqrt{3}r$
50. In the given figure, AB is a chord of length 16 cm of a circle of radius 10 cm. The tangents at A and B intersect at a point P. The length of PA is :
 (a) $\frac{20}{3}$ cm (b) $\frac{31}{3}$ cm
 (c) $\frac{40}{3}$ cm (d) $\frac{50}{3}$ cm



II. FILL IN THE BLANKS

- At most two circles can intersect in _____ points.
- The tangent of a circle intersect the circle at _____ point.
- The tangent to a circle is a special case of the _____.
- At most, a circle can have _____ parallel tangents.
- The tangent of a circle is said to _____ the circle at the point of contact.
- The line containing the radius through the point of contact is also known as _____ to the circle at the point.
- There are _____ tangents to a circle passing through a point lying inside the circle.
- The tangent at any point of a circle is _____ to the radius through the point of contact.
- A circle can have _____ parallel secants.
- A line can intersect a circle at the most at _____ points.

III. VERY SHORT ANSWER QUESTIONS

- If the angle between two radii of a circle is 130° , then find the angle between the tangents at the ends of the radii.
- The pair of tangents AP and AQ are drawn from an external point A to a circle with centre O. If $AP \perp AQ$ and $AP = 5$ cm, find the radius of the circle.
- The angle between two tangents to a circle may be 0° . Is it true?
- The tangents drawn at the ends of a diameter of a circle are parallel. Is it true?

5. In a circle of radius 7 cm, tangent PT is drawn from a point P such that $PT = 24$ cm. If O is the centre of the circle, then find the length of OP.
6. A point P is 17 cm away from the centre of a circle and the length of tangent drawn from P to the circle is 15 cm. Find the radius of the circle.
7. Find the length of the tangent drawn from a point whose distance from the centre of a circle is 20 cm and the radius of the circle is 16 cm.
8. If the angle between two tangents drawn from an external point P to a circle of radius a and centre O is 60° , then find the length of OP.

ANSWERS

I. Multiple Choice Questions :

1. (c) 2. (b) 3. (d) 4. (c) 5. (b) 6. (c) 7. (d) 8. (b) 9. (a) 10. (d) 11. (c)
12. (a) 13. (a) 14. (a) 15. (b) 16. (b) 17. (d) 18. (b) 19. (c) 20. (b) 21. (d) 22. (d)
23. (c) 24. (c) 25. (c) 26. (a) 27. (d) 28. (b) 29. (b) 30. (b) 31. (c) 32. (b) 33. (a)
34. (d) 35. (b) 36. (b) 37. (c) 38. (b) 39. (a) 40. (d) 41. (b) 42. (c) 43. (d) 44. (a)
45. (c) 46. (a) 47. (b) 48. (c) 49. (d) 50. (c)

II. Fill in the Blanks :

1. 2 2. only one 3. secant 4. 2 5. touch
6. normal 7. 0 8. perpendicular 9. infinite 10. 2

III. Very Short Answer Questions :

1. 50° 2. 5 cm 3. Yes 4. Yes 5. 25 cm 6. 8 cm 7. 12 cm 8. $2a$