Geometry – Circles

1. A chord of length 30 cm is at a distance of 8 cm from the centre of a circle. The radius of the circle is

a) 17 cm b) 23 cm c) 21 cm d) 19 cm

2. The radius of a circle is 13cm and XY is a chord, which is at a distance of 12cm from the centre. Find the length of the chord?

a) 12 cm b) 10 cm c) 20 cm d) 15 cm

3. Two parallel chords of a circle, of diameter 20 cm lying on the opposite sides of the centre are the lengths 12 cm and 16 cm. The distance between the chord is –

a) 16 cm b) 24 cm c) 14 cm d) 20 cm

4. If the length of a chord of a circle, which makes an angle 45° with the tangent drawn at one end point of the chord is 6 cm, then the radius of the circle is?

a) 5 cm b) $3\sqrt{2}$ cm c) 6 cm d) $6\sqrt{2}$ cm

5. The length of the common chord of two circles of radii 30 cm and 40 cm whose centres are 50 cm a part, is (in cm)

a) 12 b) 24 c) 36 d) 48

6. Two chords AB, CD of a circle with centre O intersect each other at P. $\angle ADP = 23°$ and $\angle APC = 70°$, then the $\angle BCD$ is

a) 45° b) 47° c) 57° d) 67°

7. PQ is a direct common tangent of two circles of radii r1 and r2 touching each other externally at A. Then the value of PQ2 is_

   a) r1r2 b) 2 r1r2 c) 3 r1r2 d) 4 r1r2

8. The length of the tangent drawn to a circle of radius 4 cm from a point 5 cm away from the centre of the circle is-

   a) 3 cm b) 4√2 cm c) 5√2 cm d) 3√2 cm

9. If the radii of two circles be 6 cm and 3 cm and the length of the transverse common tangent be 8 cm, then the distance between the two centers is?

   a) √150 cm b) √135 cm c) √145 cm d) √140 cm

10. If two concentric circles of radii 5 cm and 3 cm, then the length of the chord of the larger circle which touches the smaller circle is

    a) 6 cm b) 7 cm c) 10 cm d) 8 cm

11. The length of the chord of a circle is 8 cm and perpendicular distance between centre and the chord is 3cm. Then the radius of the circle is equal to

    a) 4 cm b) 5 cm c) 6 cm d) 8 cm

12. Two circles of radii 4cm and 9 cm and respectively touch each other externally at a point and a common tangent touches them at the point P and Q respectively. Then the area of a square with one side PQ, is

    a) 97 sq cm b) 194 sq cm c) 72 sq cm d) 144 sq cm

13. Two tangents are drawn from a point P to a circle at A and B. O is the centre of the circle. If ∠AOP = 60°, then ∠APB is

    a) 120° b) 90° c) 60° d) 30°

14. If a circle with radius of 10 cm has two parallel chords 16cm and 12 cm and they are on the same side of the centre of the circle, then the distance between the two parallel chords is

    a) 2 cm b) 3 cm c) 5 cm d) 8 cm

15. Two circles of radii 8cm and 2cm respectively touch each other externally at the point A. PQ is the direct common tangent of those two circles of centers O1 and O2 respectively. Then length of PQ is equal to

    a) 2 cm b) 3 cm c) 4 cm d) 8 cm

16. The tangents drawn at the points A and B of a circle centre at O meet at P. If ∠AOB = 120° then ∠APB: ∠APO is

    a) 2:5 b) 3:2 c) 4:1 d) 2:1

17. P and Q are the middle pints of two chords (not diameters) AB and AC respectively of a circle with centre at a point O. The lines OP and OQ are produced to meet the circle respectively at the points R and S.T is any point on the major are between the points R and S of the circle. If ∠BAC = 32, ∠RTS = ?

    a) 32° b) 74° c) 106° d) 64°

18. Two equal circles pass through each other's centre. If the radius of each circle is 5cm, what is the length of the common chord?

    a) 5 b) 5√3 c) 10√3 d) (5√3)/2

19. AB is a diameter of a circle with centre O. CD is a chord equal to the radius of the circle. AC and BD are produced to meet at P. Then the measure at ∠APB is

    a) 30° b) 60° c) 90° d) 120°

20. P is a point outside a circle and is 13cm away from its centre. A secant drawn from the point P intersects the circle at points A and Bin such a way that PA = 9cm and AB =7cm. The radius of the circle is

    a) 5 cm b) 4 cm c) 4.5 cm d) 5.5 cm

21. The length of the common chord of two circles of radii 15 cm and 20cm whose centers are 25cm apart is (in cm)

    a) 24 b) 25 c) 15 d) 20

22. Two circles with radii 5cm and 8cm touch each other externally at a point A. If a straight line through the point A cuts the circles at points P and Q respectively, then AP : AQ is

    a) 8:5 b) 5:8 c) 3:4 d) 4:5

23. Two circles with same radius r intersect each other and one passes through the centre of the other. Then the length of the common chord is

    a) r b) $\sqrt{3}$ r c) $\sqrt{3}/2r$ d) $\sqrt{5}r$

24. AB and CD are two parallel chords on the opposite sides of the center of the circle. If AB = 10cm, CD = 24cm and the radius of the circle is 13cm, the distance between the chords is

    a) 17 cm b) 15 cm c) 16 cm d) 18 cm

Answers

1 – a	2 - b	3 - c	4 - b	5 - d	6 - b	7 - d	8 - a	9 - c	10 - d
11 - b	12 - d	13 - c	14 - a	15 - d	16 - d	17 - b	18 - b	19 - b	20 - a
21 - a	22 - a	23 - b	24 - a						

Additional Examples

1. AB and CD are two parallel chords of a circle lying on the opposite side of the centre and the distance between them is 17 cm. The length of AB and CD are 10 cm and 24cm, respectively. The radius (in cm) of the circle is

   a) 13 b) 9 c) 18 d) 15

2. AB = 8 cm and CD = 6 cm are two parallel chords on the same side of the centre of a circle. The distance between them is 1 cm. The radius of the circle is

   a) 5 cm b) 4 cm c) 3 cm d) 2 cm

3. Two circle touch externally. The sum of their areas is 130 π sq cm and the distance between their centres is 14cm. The radius of the smaller circle is

   a) 5cm b) 2 cm c) 3cm d) 4 cm

4. Two chords of length a unit and b unit of a circle make angles 60° and 90° at the centre of a circle respectively, then the correct relation is

   a) $b=\sqrt{3}a$ b) $b = 2a$ c) $b = \sqrt{2}\,a$ d) $b = \frac{3}{2}a$

5. AC and BC are two equal chords of a circle. BA is produced to any point P and CP, when joined cuts the circle at T. Then,

   a) CT : TP = AB : CA b) CT : TP = CA : AB

   c) CT : CB = CA : CP d) CT : CB = CP : CA

6. AC is transverse common tangent to two circles with centres P and Q and radii 6 cm and 3 cm at the point A and C, respectively. If AC cuts PQ at the point B and AB = 8 cm, then the length of PQ is

   a) 10 cm b) 12 cm c) 13 cm d) 15 cm

7. Two chords AB and CD of circle whose centre is O, meet at the point P and ∠AOC = 50° , ∠BOD = 40° . Then the value of ∠BPD is

   a) 60° b) 40° c) 45° d) 75°

8. If the four equal circles of radius 3 cm touch each other externally, then the area of the region bounded by the four circles is

   a) 4 (9 – π) sq. cm b) 9(4- π) sq. cm

   c) 5(6- π) sq. cm d) 6(5- π) sq. cm

10. The tangents are drawn at the extremities of a diameter AB of a circle with centre P. If a tangent to the circle at the point C intersects the other two tangents at Q and R, then the measure of the ∠QPR is

    a) 45° b) 60° c) 90° d) 180°

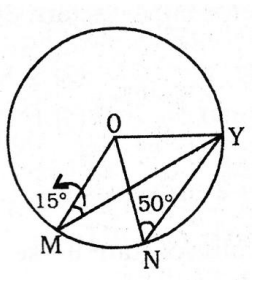
11. AB is a chord to a circle and PAT is the tangent to the circle at A. If ∠BAC = 45° , and ∠BAT = 75° C being a point on the circle, then ∠ABC is equal to

    a) 40° b) 45° c) 60° d) 70°

12. PR is tangent to a circle, with centre O and radius 4cm, at point Q. If ∠POR = 90°, OR = 5cm and OP = $\frac{20}{3}$cm then , in cm, the length of PR is :

    a) 3 b) $\frac{16}{3}$ c) $\frac{23}{3}$ d) $\frac{25}{3}$

13. In the given figure, ∠ONY = 50° and ∠OMY = 15°. Then the value of the ∠MON is



a) 30° b) 40° c) 20° d) 70°

Answers

1 – a	2 - a	3 - c	4 - c	5 - c	6 - d	7 - c	8 - b	9 - d	10 - c
11 - d	12 - d								