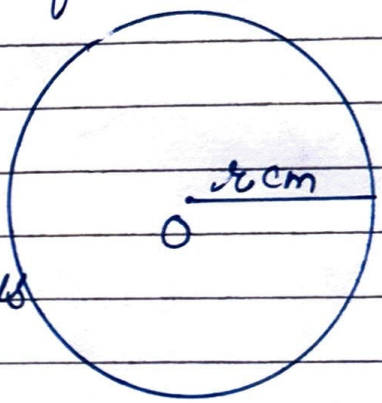
Tender Heart High School, Sec-33B, Chd.

Class - VI
Subject - Mathematics

Date - 18.11.24
Teacher - Ms. Sushma

Chapter-18
Circle

A circle is a simple closed curve consisting of all points in a plane which are at a fixed distance, say r cm, from a fixed point O inside it.

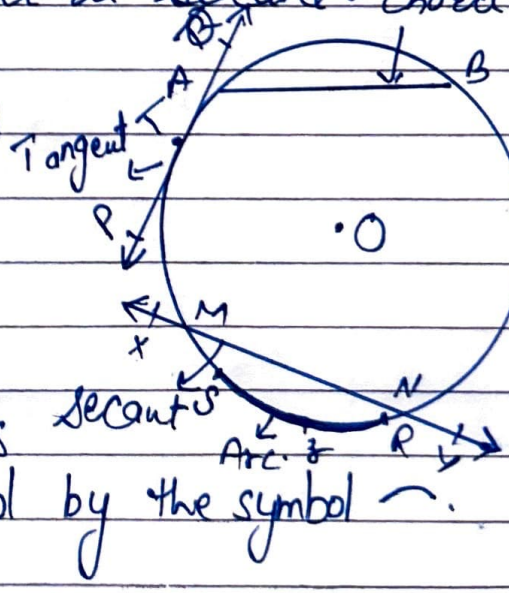


Radius:- A line segment joining any point on the circle to its centre is called a radius of the circle.

Chord:- A line segment whose end points lie on a circle is called a chord.

Secant:→ A line which intersects the circle at two distinct points is called a secant.

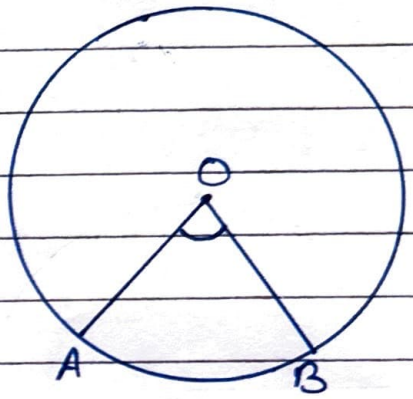
Tangent:→ A line which touches a circle at one point only, is called a tangent to the circle at that point.



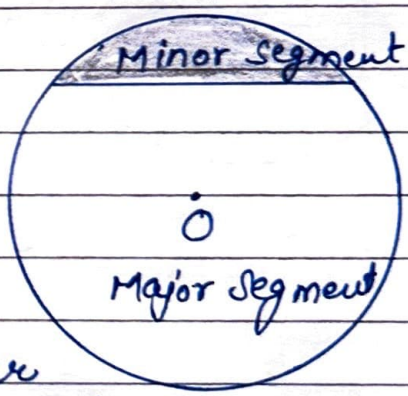
Arc:→ Any part of a circle is called an arc. It is denoted by the symbol ⌒.

Circumference :→ The whole arc of the circle is called its circumference.

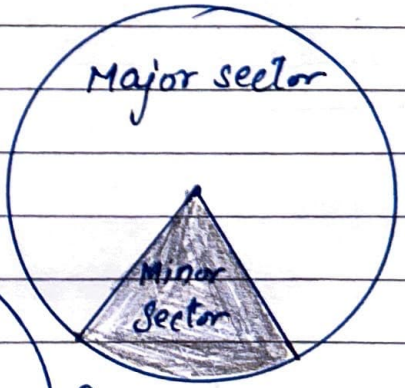
Angle subtended by an arc :→ The angle formed by the two radii at the ends of an arc of the circle, at the centre of the circle is called the angle subtended by the arc.



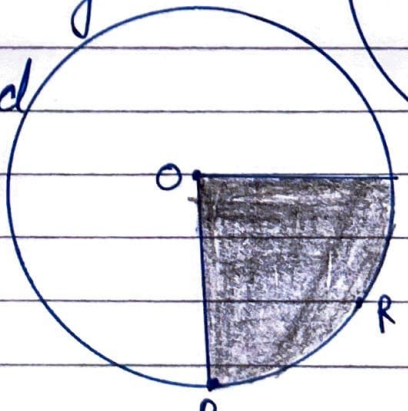
Segment of a circle A chord of a circle divides its circular region into two parts. Each part is called a segment.



Sector of a circle :→ The part of the circular region bounded by an arc and the two radii at the ends of the arc together with the arc and the radii is called a sector of the circle.



Quadrant :→ If the two radii OP and OQ are right angles to each other, then the sector OPRQ is called the quadrant of the circle.



Exercise 18A

Q1. Find the length of the diameter of a circle of radius:

(i) 5 cm

Soln:→ Radius of a circle = 5 cm
Diameter of a circle = 2 × Radius
= 2 × 5
= 10 cm

(ii) 3.6 cm

Soln:- Radius of a circle = 3.6 cm
Diameter of a circle = 2 × radius
= 2 × 3.6
= 7.2 cm

(iii) 2.8 cm

Soln:- Radius of a circle = 2.8 cm
Diameter of a circle = 2 × radius
= 2 × 2.8
= 5.6 cm

EXERCISE 18 A

1. *Find the length of the diameter of a circle of radius :*
   (i) 5 cm *(ii)* 3.6 cm *(iii)* 2.8 cm
2. *Fill in the blanks :*
   (i) The perimeter of a circle is called its circumference.
   (ii) A diameter is the longest chord of the circle.
   (iii) Half of a circle is called a semi-circle.
   (iv) The mid-point of a diameter of a circle is the centre of the circle.
   (v) All the radii of a circle are equal.
   (vi) A line segment having its end points on a circle is called a chord of the circle.
   (vii) A chord that passes through the centre of a circle is called a diameter of the circle.
   (viii) The interior of a circle together with the circle is called the circular region
   (ix) A line which intersects the circle at two distinct points is called a secant.
   (x) A quadrant is one-fourth of a circle.

EXERCISE 18 B

MULTIPLE CHOICE QUESTIONS

Choose the correct answer in each of the following :

1. *A circle*
   (a) is *a* polygon (b) is *an* open curve (c) is a closed curve (d) none of these
2. *The length of the boundary of a circle is called its*
   (a) circumference (b) arc length (c) segment (d) none of these
3. *The centre of a circle*
   (a) lies in its interior (b) lies in its exterior
   (c) lies on the circle (d) none of these
4. *The line segment joining the centre of a circle to any point on the circle is called*
   (a) the chord of the circle (b) the radius of the circle
   (c) the diameter of the circle (d) none of these
5. *Circles having same centre but different radii are called*
   (a) intersecting circles (b) concentric circles
   (c) adjacent circles (d) none of these
6. *A line segment joining any two points of a circle is called*
   (a) a diameter (b) a chord (c) a radius (d) a secant
7. *A line which intersects a circle at two distinct points is called a*
   (a) chord (b) secant (c) diameter (d) radius
8. *Any part of a circle is called*
   (a) a radius (b) an arc (c) a segment (d) none of these
9. *A chord of a circle divides a circle into two parts. Each part is called*
   (a) a sector (b) a segment (c) a quadrant (d) none of these
10. *If the radius of a circle is 5 cm, then its diameter is*
    (a) 2.5 cm (b) 5 cm (c) 7.5 cm (d) 10 cm
11. *If the diameter of a circle is 8.5 cm, then its radius is*
    (a) 17 cm (b) 4.25 cm (c) 8.5 cm (d) none of these

MENTAL MATHS

1. *Fill in the blanks :*

   (i) The length of the boundary of a circle is called its circumference.

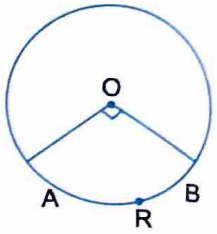
   (ii) The centre of a circle lies in its interior.

   (iii) Radius of a circles is half of its diameter.

   (iv) An arc of a circle is a part of the circle.

   (v) All the radii of circle are equal.

   (vi) If O is the centre of a circle and two radii OA and OB are at right angles then the sector OARBO is called the quadrant of the circle.



2. *Write (T) for true and (F) for false for each of the following statements :*

   (i) One half of the whole arc of a circle is called a semi-circle. T

   (ii) (Length of major arc) > (Circumference of the circle). F

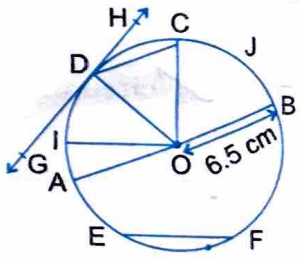
   (iii) (Length of minor arc) < (length of the semi-circle). T

   (iv) Whole arc of a circle is called its circumference. T

   (v) A chord of a circle divides its circular region into two parts. Each part is called the segment of the circle. T

CASE STUDY BASED QUESTIONS

Answer the following questions with respect to the adjoining figure consisting of a circle with centre O.



1. The length of the diameter of the circle is :

   (a) 6.5 cm (b) 12 cm

   (c) 10 cm (d) 13 cm

2. Which of the following is a majar arc of the circle?

   (a) $\overset{\frown}{ADC}$ (b) $\overset{\frown}{AFB}$ (c) $\overset{\frown}{AFC}$ (d) $\overset{\frown}{AEF}$

3. Which of the following is not a chord of the circle?

   (a) AB (b) OA (c) CD (b) EF

4. Which of the following is a minor sector of the circle?

   (a) OAFBO (b) OCJBO (c) OCDBD (b) None of these

5. Which of the following is a tangent to the circle at D?

   (a) OD (b) CD (c) GH (b) None of these