Chapter - 14

Circles

Exercise 14.1

Q1 Explain the following:

(i) Circle (ii) Radius (iii) Centre
(iv) Diameter (v) Chord (vi) Interior of a circle

Solution: (i) **Circle:** Circle is a collection of points which are equidistant from ... fixed point.

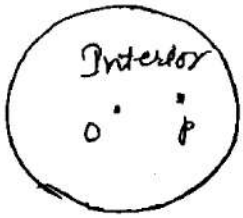
Radius: The distance of centre of circle to its circumference

Centre: The fixed point in the definition of circle is known as centre.

Diameter: longest chord of a circle is known as diameter.

Chord: A line joining any two points on the circumference of a circle.

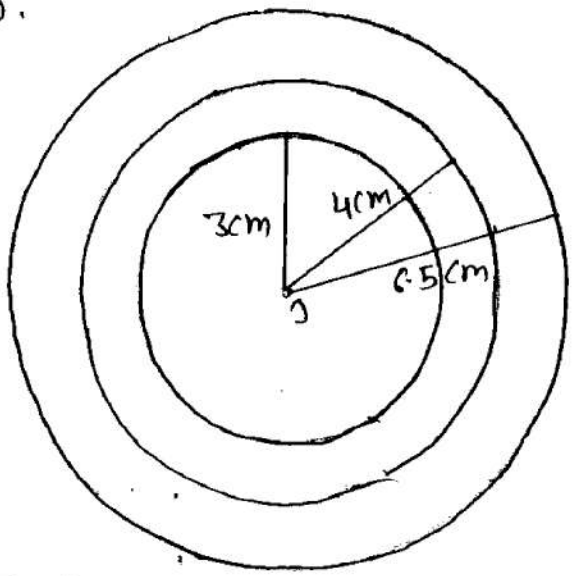
Interior of Circle: The Part of the plane, consisting of those points P, for which $OP < r$, is called the interior of the circle, with centre O and radius r.



docs.aglasem.com
aglasem.com

Q.2 Take a point on your notebook and draw circle of radii 4cm, 3cm and 6.5 cm. each having the same centre O.

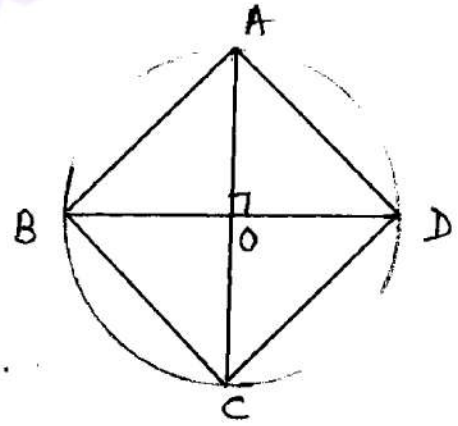
Solution:



Q.3 Draw a circle with centre O and any radius. Draw AC and BD two perpendicular diameters of the circle. Join AB, BC, CD and DA.

Solution:

In fig AC and BD are diameters of circle perpendicular to each other.



Q.4 Draw a circle with centre O and radius 5 cm. Mark points P, Q, R such that

(i) P lies on the circle (ii) Q lies in the interior of circle

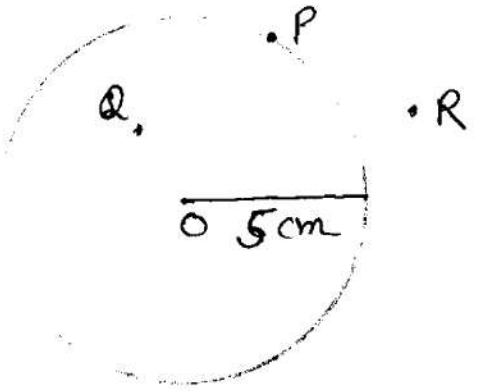
(iii) R lies in the exterior of circle.

Rewrite each of the following statement using the correct Symbol

(i) OQ ---- 5cm (ii) OP ---- 5cm (iii) OR ---- 5cm

docs.aglasem.com
aglasem.com

Solution



Therefore

(i) $OQ < 5$ cm (ii) $OP = 5$ cm

(iii) $OR > 5$ cm

Q. 5 Take two points A and B on the page of your notebook. Draw a circle with centre A which passes through B.

Solution:

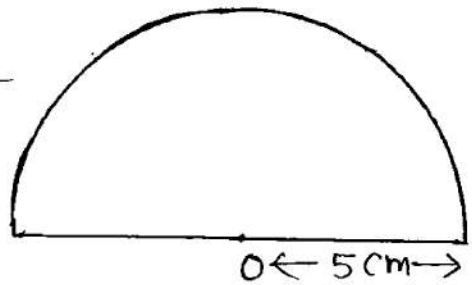
A.

B

Q6 Draw a semicircle with centre O and radius 5 cm. Is the diameter that determines the semicircle, a part of the semi-circle?

Solution:

Yes, it is the diameter that determine the semicircle.



docs.aglasem.com

aglasem.com

Q.7 The diameter of a circle is 14 cm, find its radius.

Solution : $\because$ Radius $= \frac{1}{2} \times$ diameter

$= \frac{1}{2} \times 14 = 7$ cm

Q8 Given a circle with centre O and radius 2.5 cm, what is the length of the longest chord of the circle

Solution : It is given that

radius = 2.5 cm

longest chord = diameter of circle

$= 2 \times$ radius

$= 2 \times 2.5$ cm

$= 5$ cm

$\therefore$ longest chord = 5 cm.

Q.9 Fill in the blanks :

(i) The diameter of a circle is..... times its radius.

(ii) The diameter of a circle is the _____ chord of the circle

(iii) The diameter of a circle pass through _____

(iv) A chord of a circle is a line segment with its end points on the _____

(v) If we join any two points on a circle by a line

docs.aglasem.com

aglasem.com

Segment, we obtain ------ of the circle.

(vi) A radius of a circle is a line segment with one end at _____ and the other end at _____.

(vii) All radii of a circle are _____

(viii) All diameters of a circle are _____

(ix) The total number of diameters of a circle is _____

(x) Every point on a circle is _____ from its centre.

(xi) A chord of a circle contains exactly _____ points of the circle

(xii) A diameter is the longest _____

(xiii) Concentric circles are circles having _____

Solution: (i) two (ii) longest (iii) centre

(iv) circle (v) chord (vi) centre, circle

(vii) equal (viii) Concurrent (ix) Infinite (x) equidistant

(xi) two (xii) Chord (xiii) Same centre.

Q.10 : In each of the following, state if the statement is true (T) or false (F):

(i) Every circle has a centre.

(ii) The centre of a circle is a point of the circle.

(iii) Any two radii of a circle make up a diameter.

(iv) Every chord of a circle ~~make~~ is parallel to some diameter of the circle.

docs.aglasem.com

aglasem.com

(v) A circle is symmetric about each of its diameters

(vi) The diameter is twice the radius

(vii) A radius is a chord of the circle.

(viii) Concentric circles have the same radii.

(ix) The nearer a chord to the centre of a circle, the longer is its length.

Solution (i) True (ii) False (iii) False

(iv) False (v) True (vi) True

(vii) False (viii) True (ix) True.

aglasem

docs.aglasem.com

aglasem.com