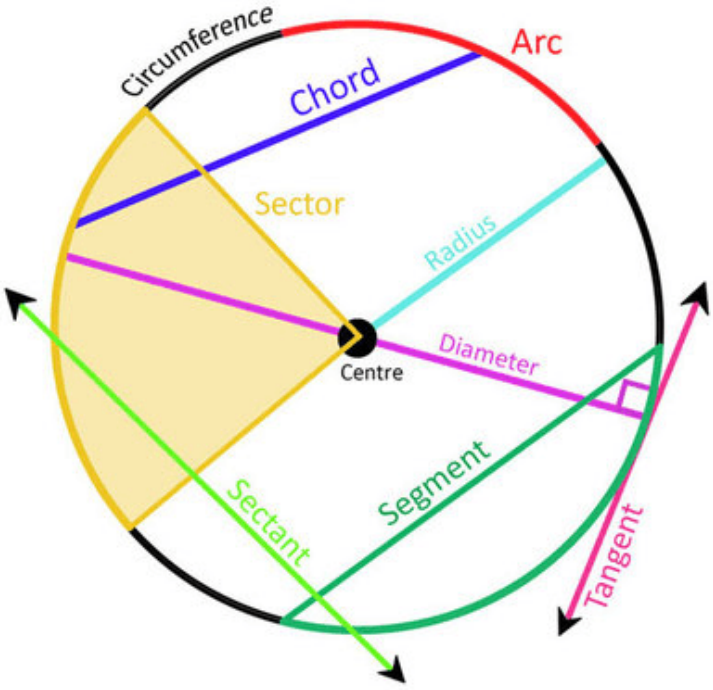
NCERT Class 9 Solutions: Circles (Chapter 10) Exercise 10.1



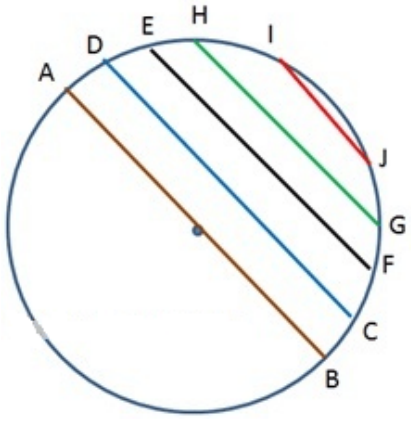
Q-1 Fill in the blanks

1. The centre of a circle lies in _____ of the circle. (exterior/interior)
2. A point, whose distance from the centre of a circle is greater than its radius lies in _____ of the circle. (exterior/interior)

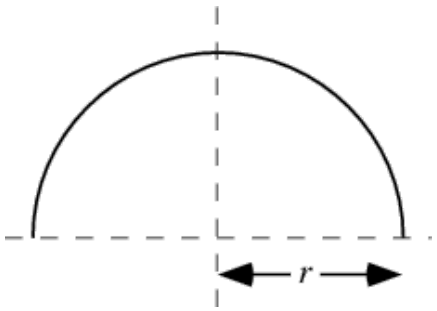
3. The longest chord of a circle is a _____ of the circle.
4. An arc is a _____ when its ends are the ends of a diameter.
5. Segment of a circle is the region between an arc and _____ of the circle.
6. A circle divides the plane, on which it lies, in _____ parts.

Solution:

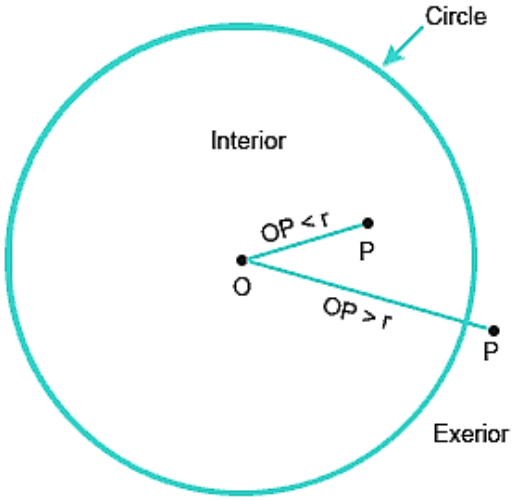
1. The centre of a circle lies in interior of the circle.
2. A point, whose distance from the centre of a circle is greater than its radius lies in exterior of the circle.
3. The longest chord of a circle is a diameter of the circle.



1. An arc is a semi-circle when its ends are the ends of a diameter.



1. Segment of a circle is the region between an arc and chord of the circle.
2. A circle divides the plane, on which it lies, in three parts. The circle itself, its interior and exterior.



Q-2 Write True or False: Give reasons for your answers.

1. Line segment joining the centre to any point on the circle is a radius of the circle.
2. A circle has only finite number of equal chords.

3. If a circle is divided into three equal arcs, each is a major arc.

4. A chord of a circle, which is twice as long as its radius, is a diameter of the circle.

5. Sector is the region between the chord and its corresponding arc.

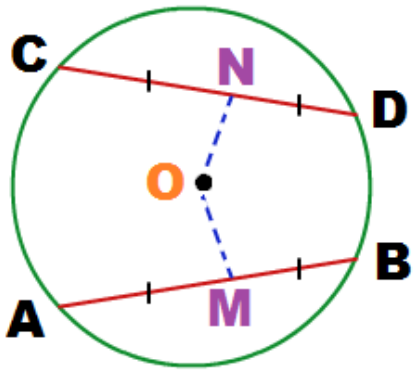
6. A circle is a plane figure.

Solution (i) :

- True, all the points on the circle are equidistant from the centre of the circle, and this equal distance is the radius of the circle.

Solution (ii) :

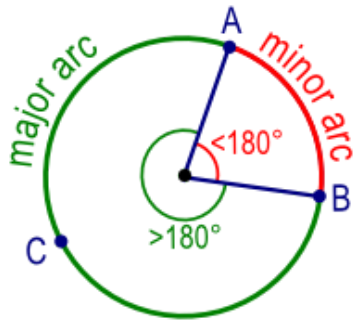
- False. For example, in the below figure we have two chords CD and AB which are both the same length.



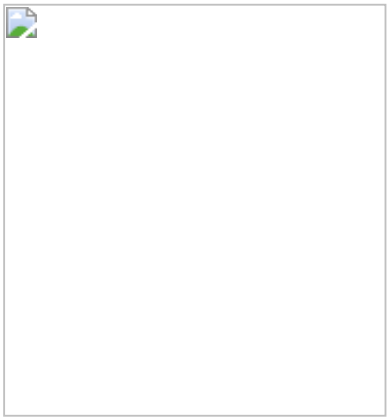
Here OM and ON are perpendicular to AB and CD respectively. ON and OM are equal. All the chords of the circle which have same perpendicular distance from the center will be equal. Clearly there are infinite such chords.

Solution (iii) :

- False. Following figure shows a major arc and a minor arc:

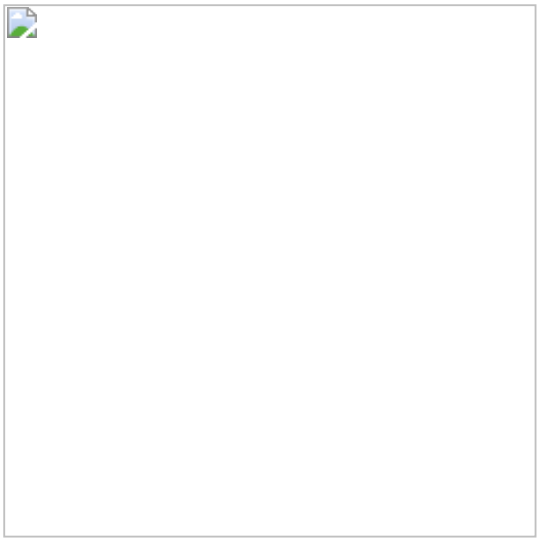


- An arc of the circle which is greater than 180 is called major otherwise they it is called minor arc.
- False, in the figure below, PQ, QR, and PR are equal parts of a circle, they each are minor arcs since they subtend an angle less than 180 degree at the center.



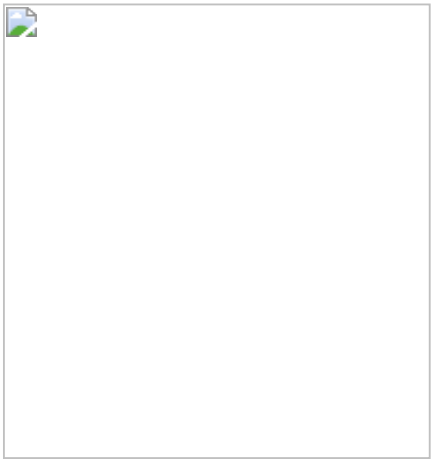
Solution (iv) :

- True. Let PQ be a chord which is twice as long as its radius. The longest chord of a circle can be 2 times the radius, i.e.. the length of the diameter. All other chords will be smaller than diameter. Therefore the only possible chord twice the radius is diameter and it this chord will be passing through the centre of the circle.



Solution (v) :

- False. Sector is the region between an arc and two radii joining the centre to the end points of the arc.
- For example, in below figure, OPQ is the sector of the circle.



Solution (vi) :

True. A circle is a two-dimensional figure and it can also be referred to as a plane figure. It can be drawn on a plane (a paper to be approximate)