



MATHS

BOOKS - CAMBRIDGE MATHS (KANNADA ENGLISH)

CIRCLES

Exercise 12 1

1. The centre of a circle lies in _____ of the circle. (exterior/interior)



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



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3. The longest chord of a circle is a _____ of the circle.



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4. An arc is a _____ when its ends are the ends of a diameter.



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5. Segment of a circle is the region between an arc and _____ of the circle.



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6. A circle divides the plane, on which it lies, in _____ parts.



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7. True or False:

Line segment joining the centre to any point on the circle is a radius of the circle.



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8. True or False:

A circle has only finite number of equal chords.



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9. True or False:

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



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10. True or False:

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



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11. True or False:

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



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12. True or False:

A circle is a plane figure.

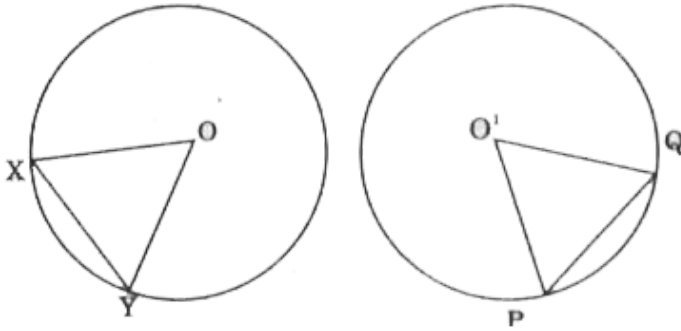


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Exercise 12 2

1. Recall that two circles are congruent, if they have the same radii. Prove that equal chords of congruent circles subtend equal angles at

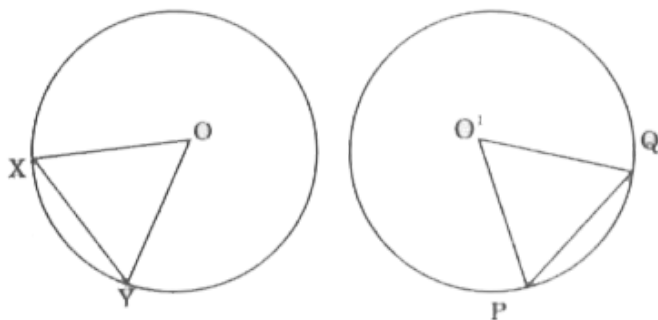
their centres



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2. Prove that if chords of congruent circles subtend equal angles at their centre then the

chords are equal.



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Exercise 12 3

1. Draw different pairs of circles. How many points does each pair have in common ? What is the maximum number of common points ?



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2. Suppose you are given a circle. Give a construction to find its centre.



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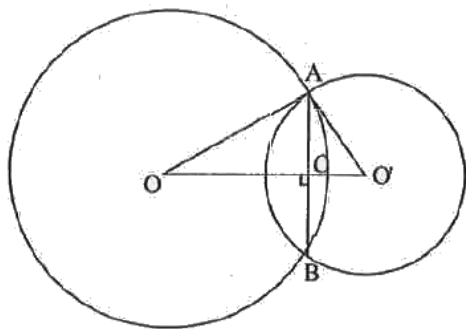
3. If two circles intersect at two points, prove that their centres lie on the perpendicular bisector of the common chord.



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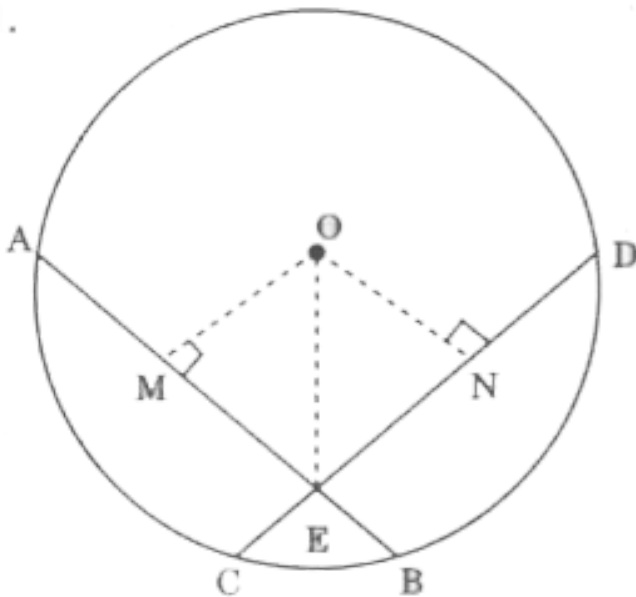
Exercise 12 4

1. Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm, Find the length of the common chord.



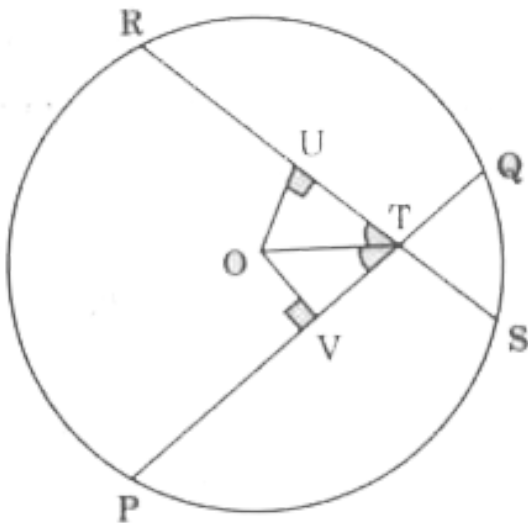
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2. If two equal chords of a circle intersect within the circle, prove that the segments of one chord are equal to corresponding segments of the other chord.



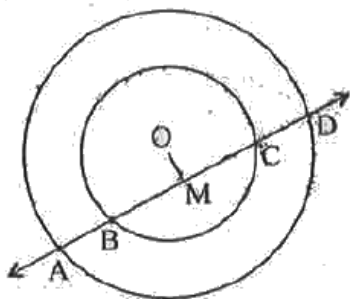
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3. If two equal chords of a circle intersect within the circle, prove that the line joining the point of intersection to the centre makes equal angles with the chords.



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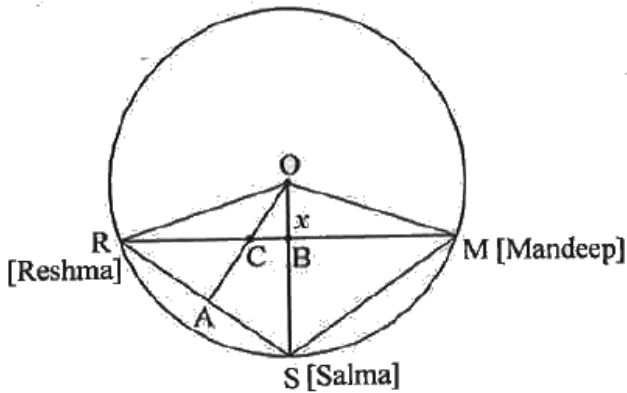
4. If a line intersects two concentric circles (circles with the same centre) with centre O at A, B, C and D, prove that $AB = CD$.



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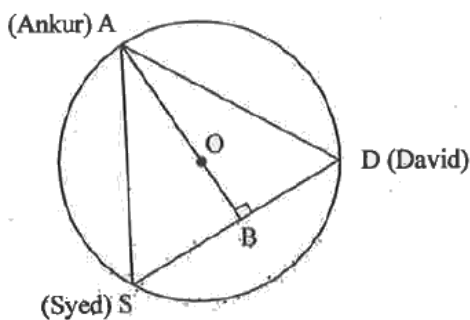
5. Three girls Reshma, Salma and Mandeep are playing a game by standing on a circle of

radius 5m drawn in a park. Reshma throws a ball to Salma, Salma to Madip, Mandeep to Reshma. If the distance between Reshma and Salma and between Salma and Mandeep is 6m each, what is the distance between Reshma and Mandeep?



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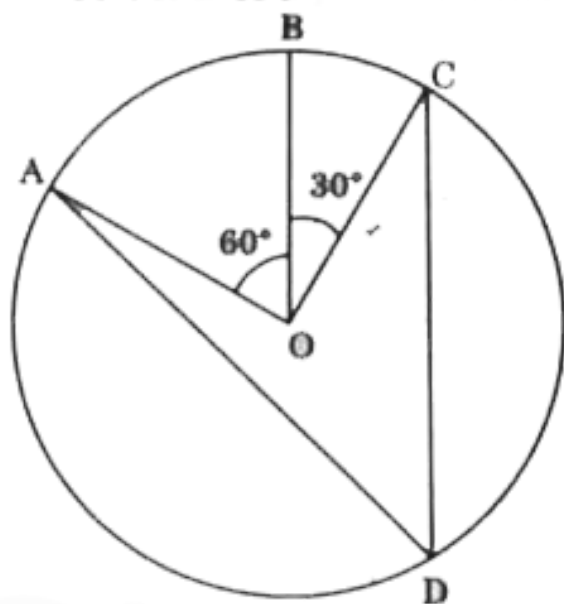
6. A circular park of radius 20m is situated in a colony. Three boys Ankur, Syed and David are sitting at equal distance on its boundary each having a toy telephone in his hands to talk each other. Find the length of the string of each phone.



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Exercise 12 5

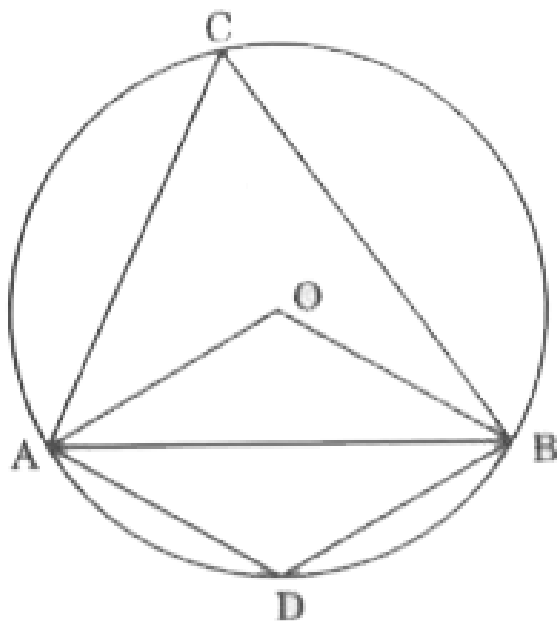
1. In the given figure, A, B and C are three points on a circle with centre O such that $\angle BOC = 30^\circ$ and $\angle AOB = 60^\circ$. If D is a point on the circle other than the arc ABC, find $\angle ADC$.





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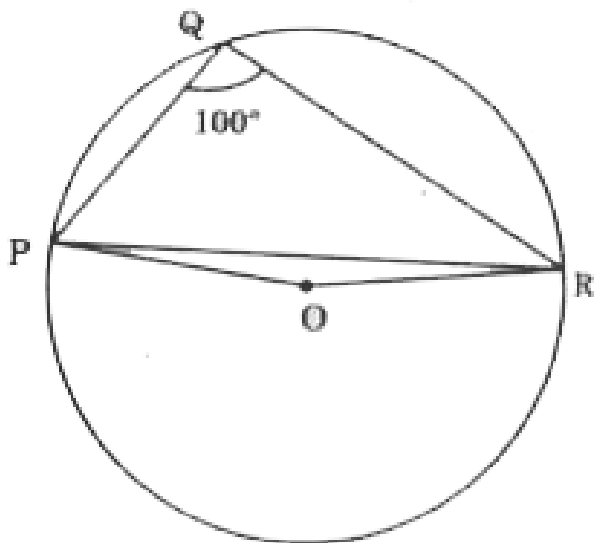
2. A chord of a circle is equal to the radius of the circle. Find the angle subtended by the chord at a point on the minor arc and also at a point on the major arc.





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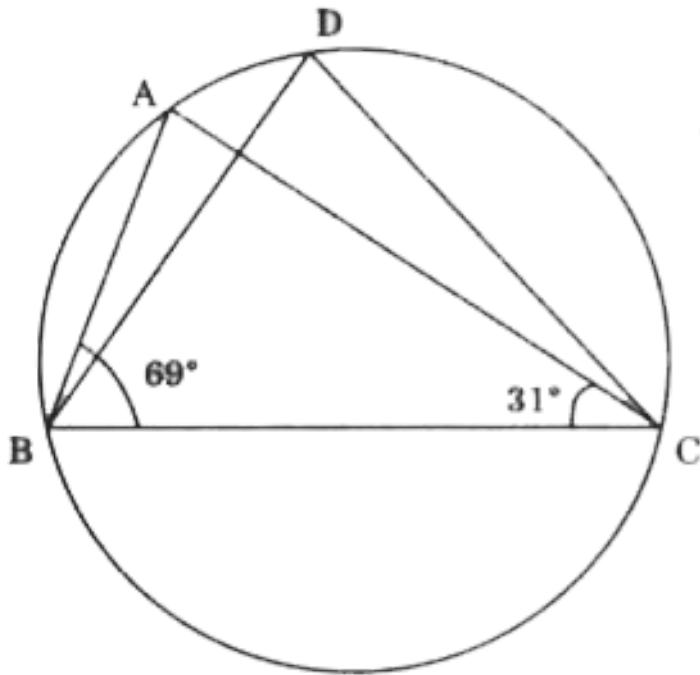
3. In the given figure, $\angle PQR = 100^\circ$, where P, Q and R are points on a circle with centre O. Find $\angle OPR$.



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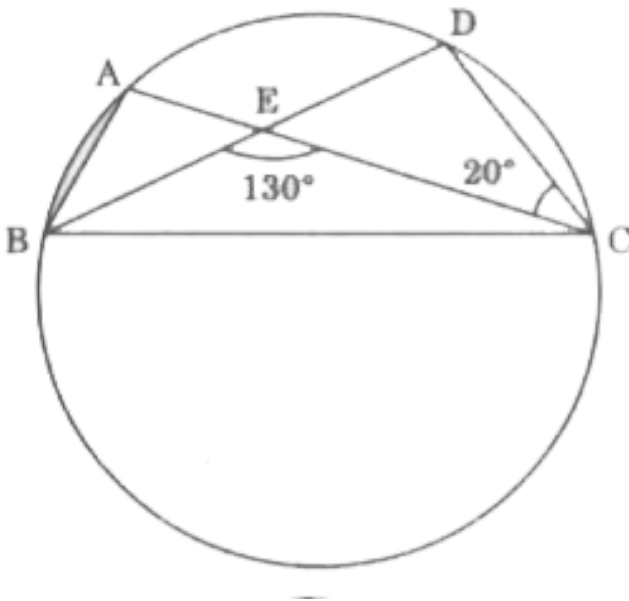
4. In the given figure,

$\angle ABC = 69^\circ$, $\angle ACB = 31^\circ$, find $\angle BDC$.



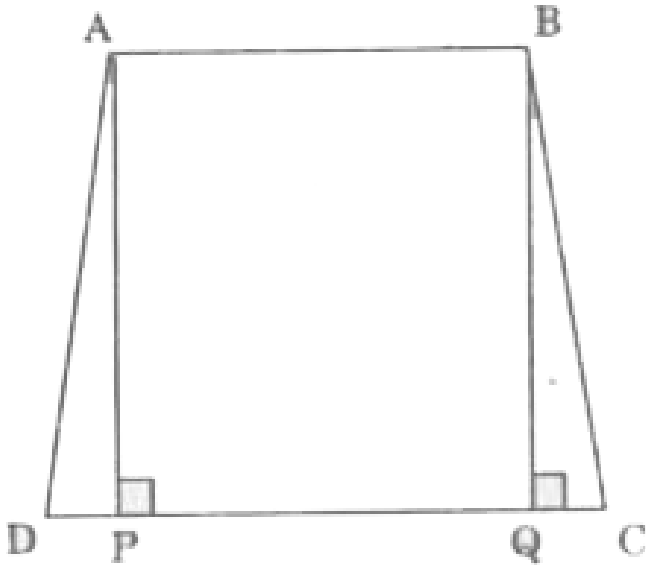
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5. In given figure, A, B, C and D are four points on a circle. AC and BD intersect at a point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. Find $\angle BAC$.



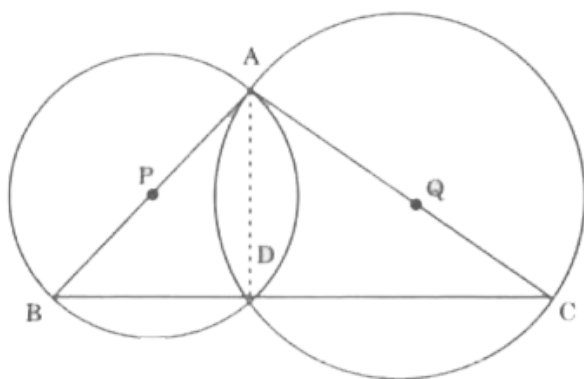
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6. If the non parallel sides of a trapezium are equal, Prove that it is cyclic.



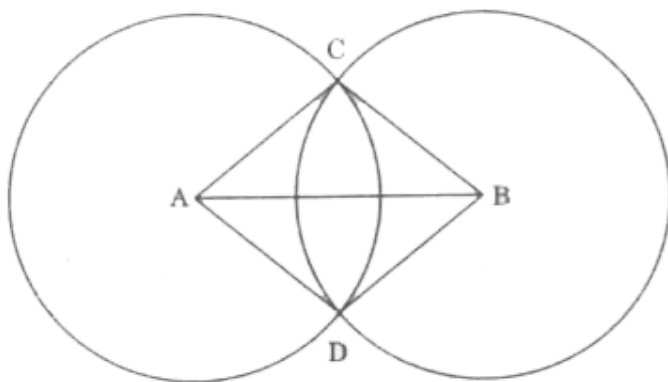
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7. If circles are drawn taking two sides of a triangle as diameters, prove that the point of intersection of these circles lie on the third side.



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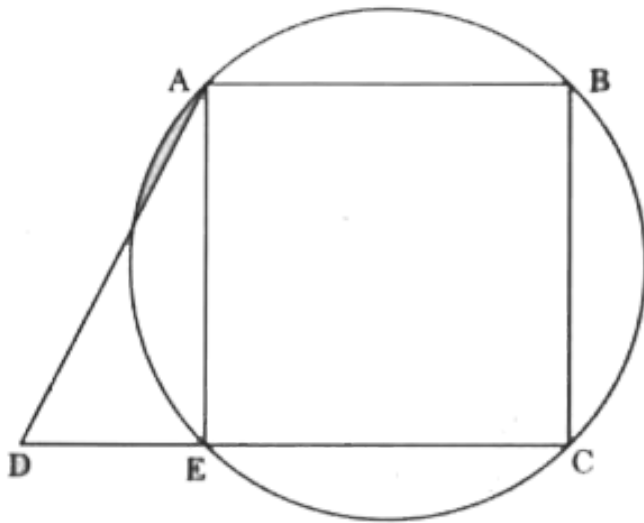
1. Prove that the line of centres of two intersecting circles subtends equal angles at the two point of intersection.



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2. ABCD is a parallelogram. The circle through A, B and C intersect CD (produced if necessary)

at E. Prove that $AE = AD$.

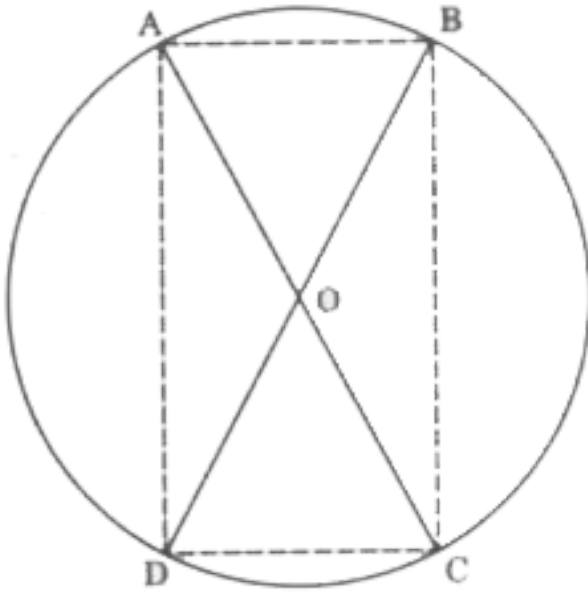


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3. AC and BD are chords of a circle which bisect each other. Prove that

(i) AC and BD are diameters,

(ii) ABCD is a rectangle.

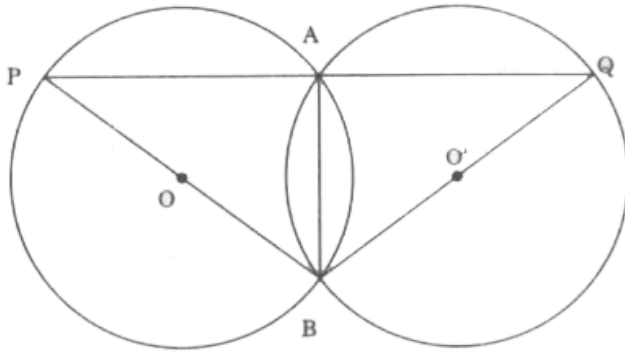


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4. Two congruent circles intersect each other at points A and B. Through A any line segment

PAQ is drawn so that P, Q lie on the two circles.

Prove that $BP = BQ$.



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