



MATHS

BOOKS - ICSE

CIRCLES

Topic 1

1. A chord of length 24 cm is at a distance of 5 cm from the centre of the circle. Find the

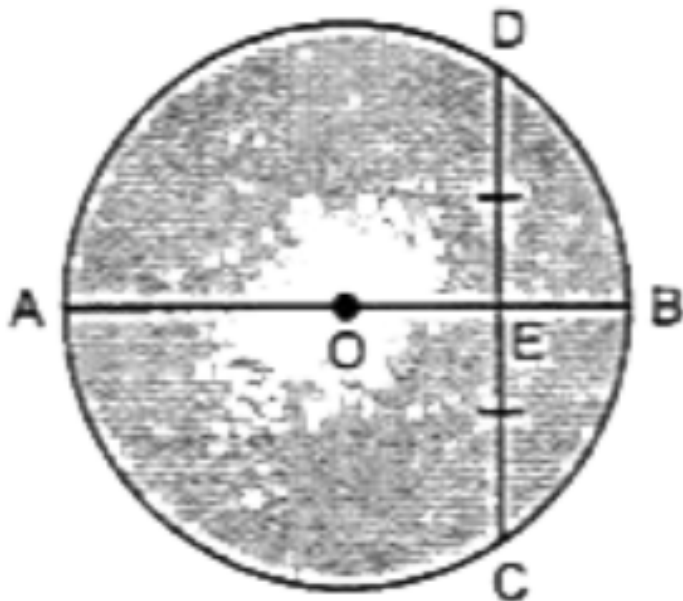
length of the chord of the same circle which is at a distance of 12 cm from the centre.



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2. The figure, given below, show a circle with centre O in which diameter AB bisects the chord CD at point E . If $CE = ED = 8$ cm and $EB =$

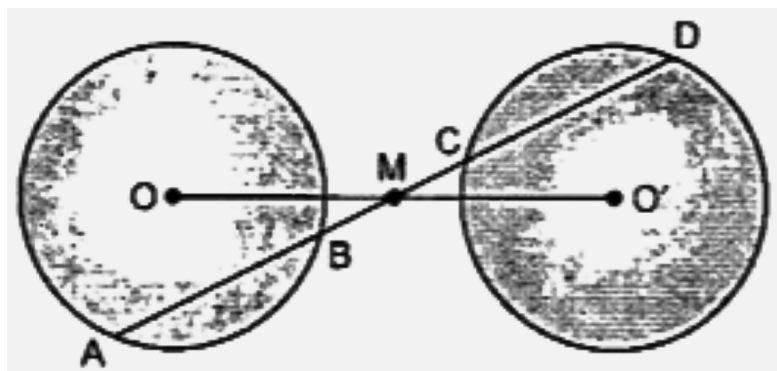
4 cm. Find the radius of the circle.



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3. A straight line is drawn cutting two equal circles and passing through the mid-point M of the joining their centres O and O' .

Prove that the chord AB and CD , which are intercepted by the two circles, are equal



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4. The length of common chord of two intersecting circles is 30 cm. If the diameters of these two circles be 50 cm and 34 cm. Calculate the distance between their centres.



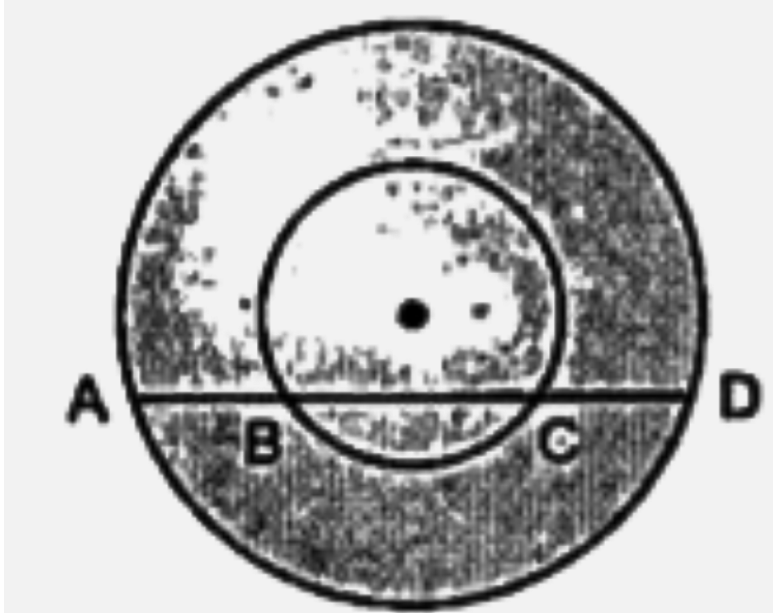
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5. In the following the line $ABCD$ is perpendicular to PQ . P and Q are the centres of the circles Show that: $AB=CD$



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6. The shows two concentric circles and AD is a chord of lenger circle. prove that $AB=CD$



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7. In a circle of radius 17 cm, two parallel chords of length 30 cm and 16 cm are drawn, find the distance between the chords, if both the

chords are :

On the opposite sides of the centre,



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8. In a circle of radius 17 cm, two parallel chords of lengths 30 cm and 16 cm are drawn.

Find the distance between the chords, if both the chords are :

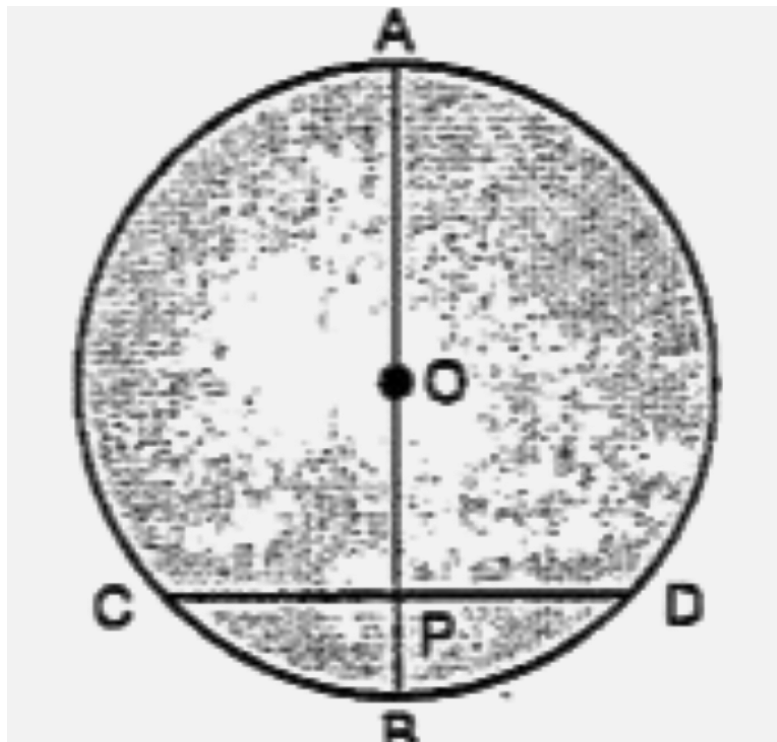
on the same side of the centre



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9. A chord CD of a circle, whose centre is O, is bisected at P by a diameter AB.

Given $OA = OB = 15$ cm and $OP = 9$ cm.



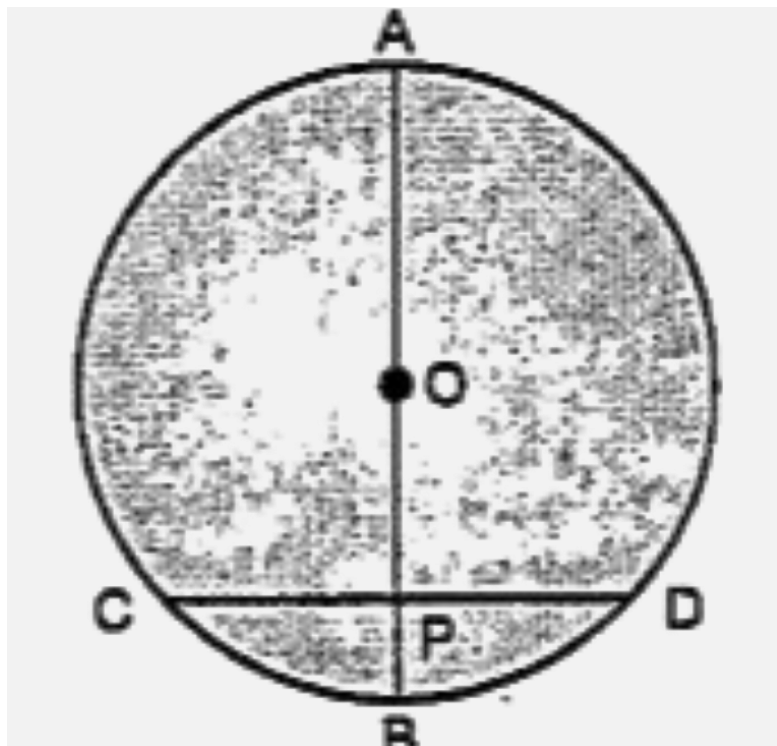
CD



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10. A chord CD of a circle, whose centre is O, is bisected at P by a diameter AB.

Given $OA = OB = 15$ cm and $OP = 9$ cm.



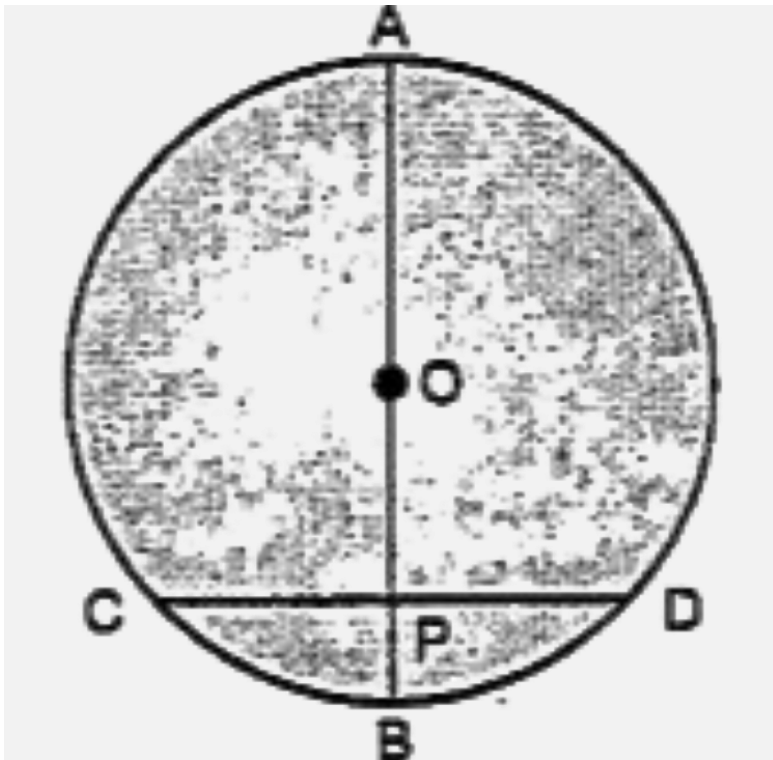
AD



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11. A chord CD of a circle, whose centre is O, is bisected at P by a diameter AB.

Give $OA = OB = 15$ cm and $OP = 9$ cm.

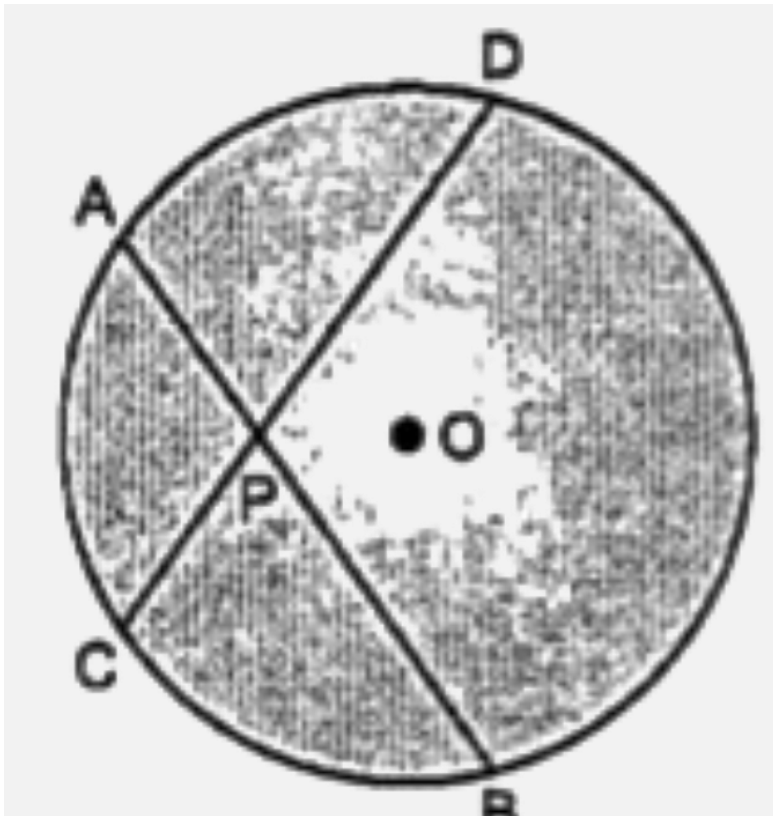


CB



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12. Two equal chord AB and CD of a circle with centre O , intersect each other at point P inside the circle.



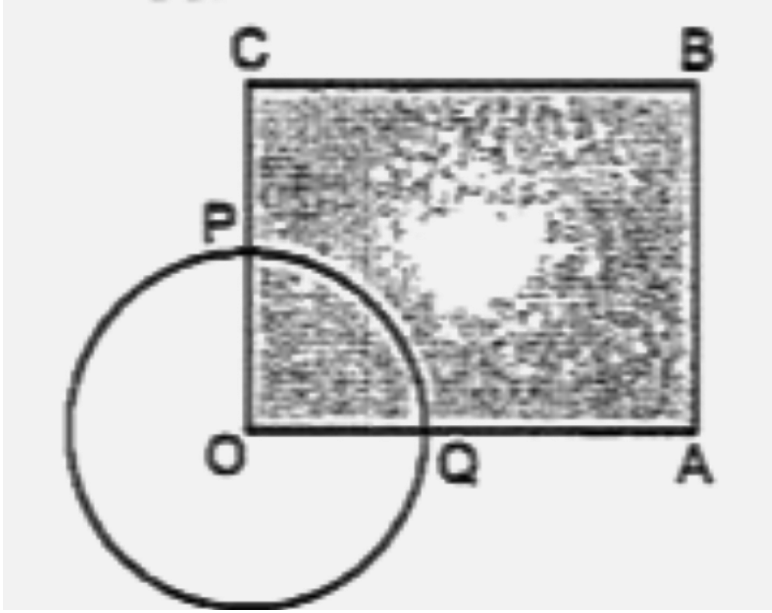
Prove that:

$$BP = DP$$



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13. In the following figure, $OABC$ is a square. A circle is drawn with O as centre which meets OC at P and OA at Q . Prove that:

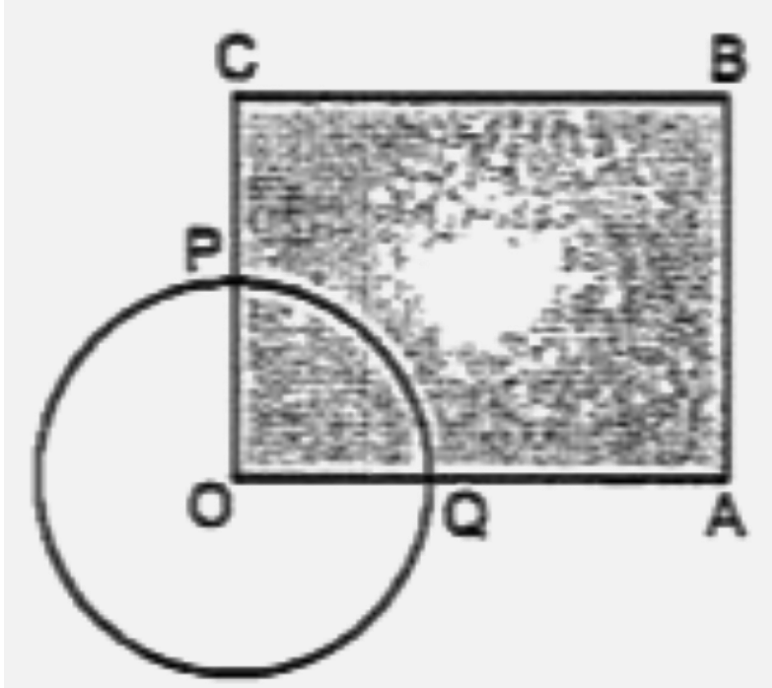


$$\triangle OPA \cong \triangle OQC$$



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14. In the following figure, OABC is a square. A circle is drawn with O as centre which meets OC at P and OA at Q. Prove that:



$$\triangle BPC \cong \triangle BQA$$



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15. AB and CD are two equal chords of a circle with centre O which intersect each other at

right angle at P. If $OM \perp AB$ and $ON \perp CD$, show that $OMPN$ is a square.



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16. In the given diagram 'O' is the centre of the circle and AB is parallel to CD. $AB = 24$ cm and distance between the chord AB and CD is 17 cm. If the radius of the circle is 13 cm, find the length of the chord CD.



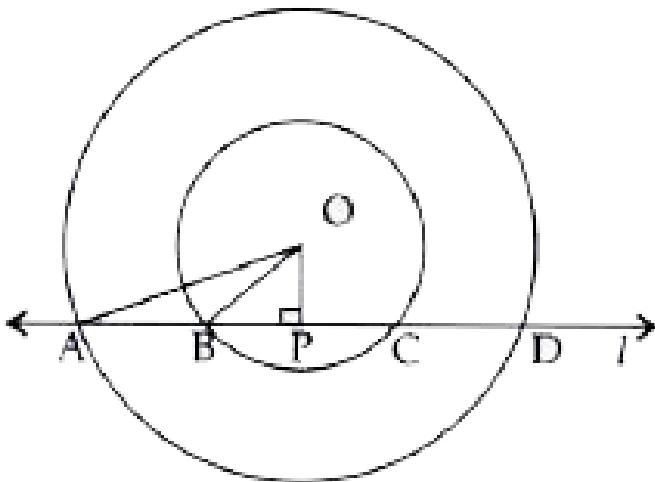
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17. In the given figure O is the centre of the two concentric circles. A line T cuts the circles at A, B, C and D as shown in the figure. OP is perpendicular to AD .

Given $OA = 34$ cm, $OP = 16$ cm and $AB = 18$ cm

Find :

length of chord AD





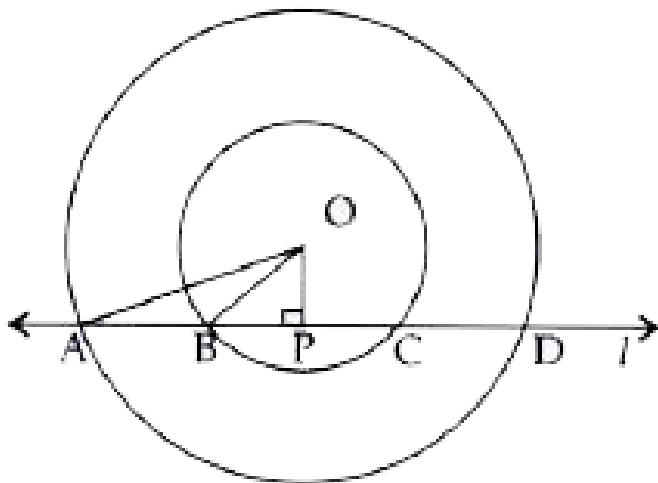
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18. In the given figure O is the centre of the two concentric circles. A line T cuts the circles at A, B, C and D as shown in the figure. OP is perpendicular to AD .

Given $OA = 34$ cm, $OP = 16$ cm and $AB = 18$ cm

Find :

length of chord BC



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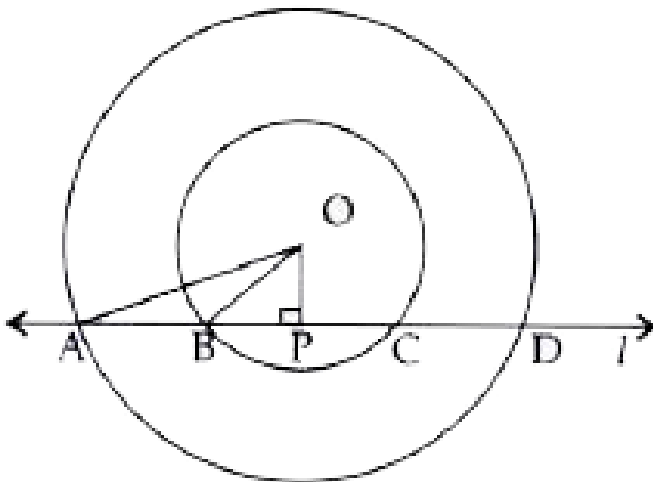
19. In the given figure O is the centre of the two concentric circles. A line l cuts the circles at A, B, C and D as shown in the figure. OP is

perpendicular to AD.

Given $OA = 34$ cm, $OP = 16$ cm and $AB = 18$ cm

Find :

radius of the smaller circle



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1. In the given figure, an equilateral triangle ABC is inscribed in a circle with centre O. Find :

$\angle BOC$



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2. In the given on equilateral triangle ABC is inscribed in a circle with centre O. Find:

$\angle OBC$ and $\angle BOC$



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3. In the given the length of arcs AB and BC are in the ratio 3:2.

If $\angle AOB = 96^\circ$ find

$\angle BOC$



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4. In the given the length of arcs AB and BC are in the ratio 3:2.

If $\angle AOB = 96^\circ$ find

$\angle ABC$



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5. Draw the circles of different radii. How many points, these circles can have in common ?
What is the maximum number of common points ?



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6. Suppose you are given a circle. Describe a method by which you can find the centre of this circle.



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7. The circumference of a circle, with centre O, is divided into three arcs APB, BQC and CRA

such that :

$$\frac{\text{arc}APB}{2} = \frac{\text{arc}BQC}{3} = \frac{\text{arc}CRA}{4} \quad \text{Find}$$

$\angle BOC$.



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8. In the given arc $AB =$ twice arc BC and

$\angle AOB = 80^\circ$ find:

$\angle BOC$



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9. In the given arc $AB =$ twice arc BC and

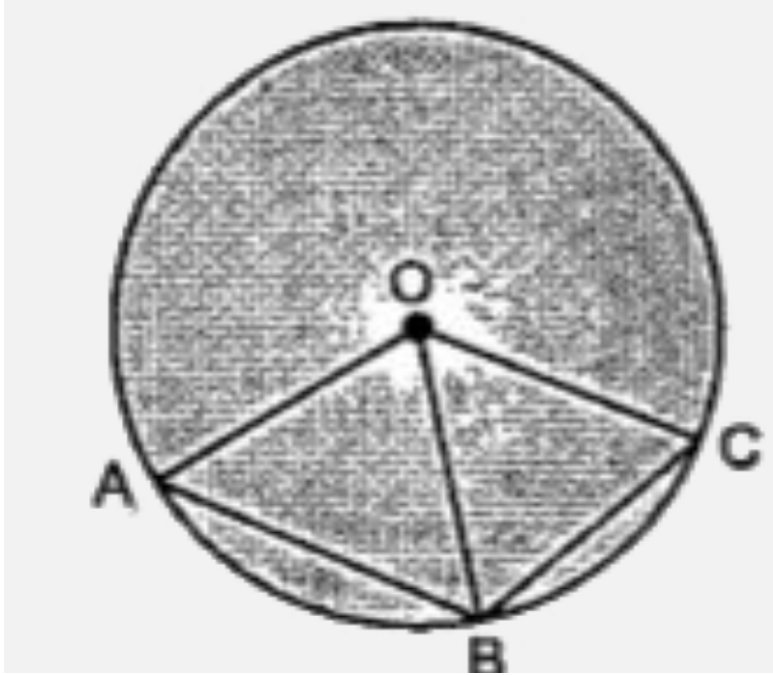
$\angle AOB = 80^\circ$ find:

$\angle OAC$



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10. In the given AB is a side of regular pentagon and BC is a side of regular hexagon.

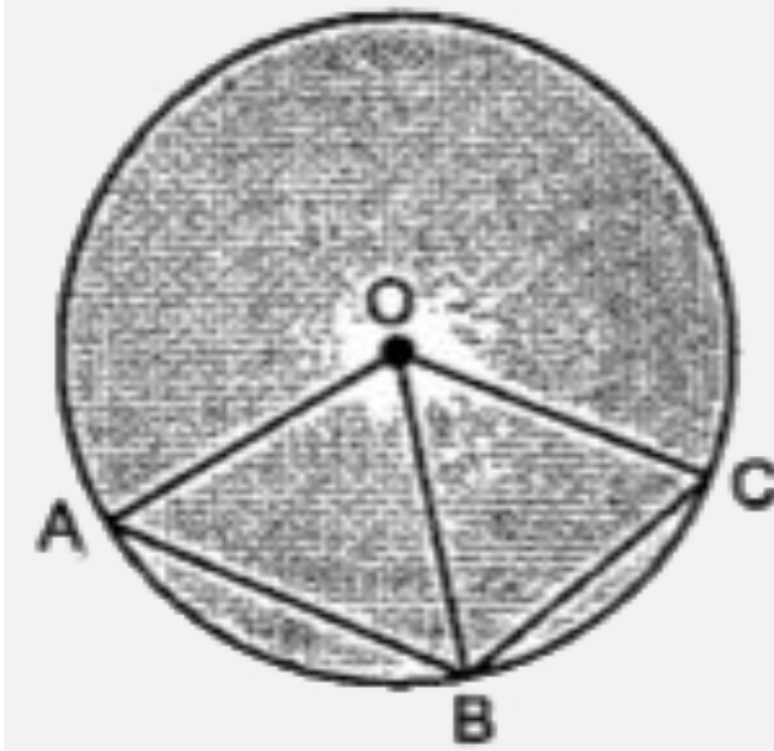


$\angle AOB$



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11. In the given AB is a side of regular pentagon and BC is a side of regular hexagon.

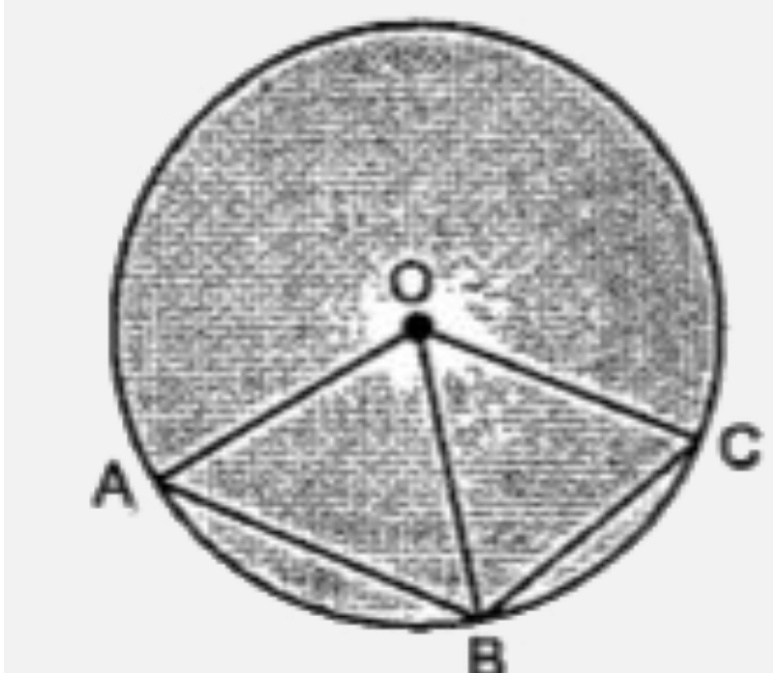


$\angle BOC$



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12. In the given AB is a side of regular pentagon and BC is a side of regular hexagon.

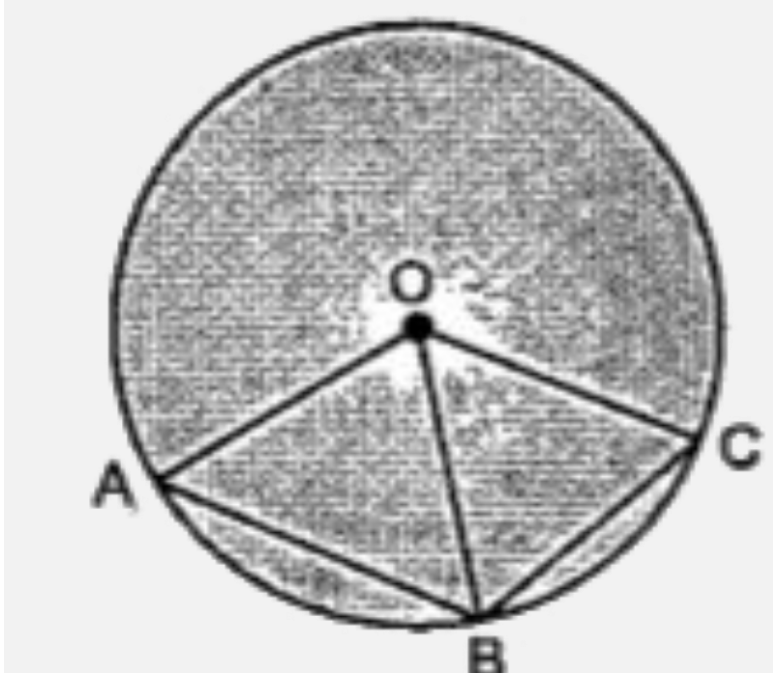


$\angle AOC$



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13. In the given AB is a side of regular pentagon and BC is a side of regular hexagon.

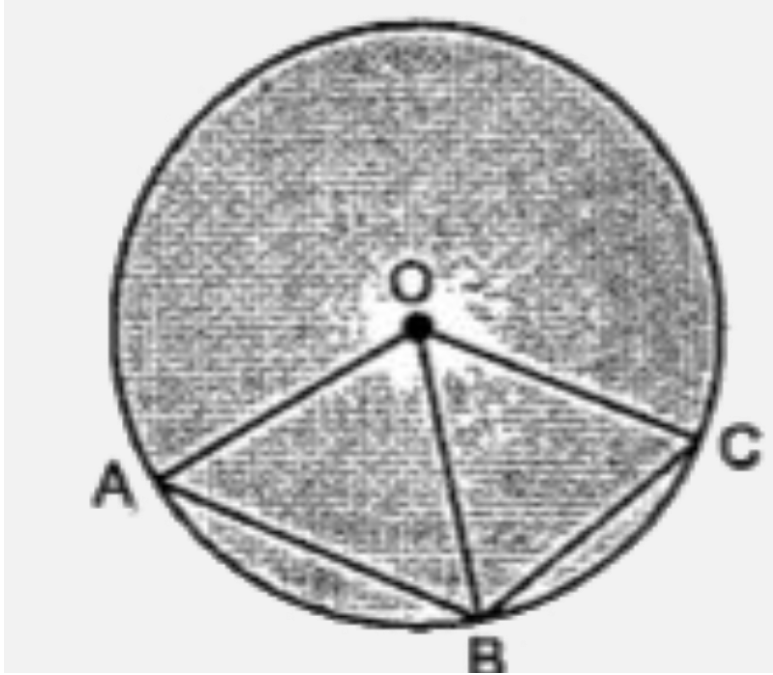


$\angle OBA$



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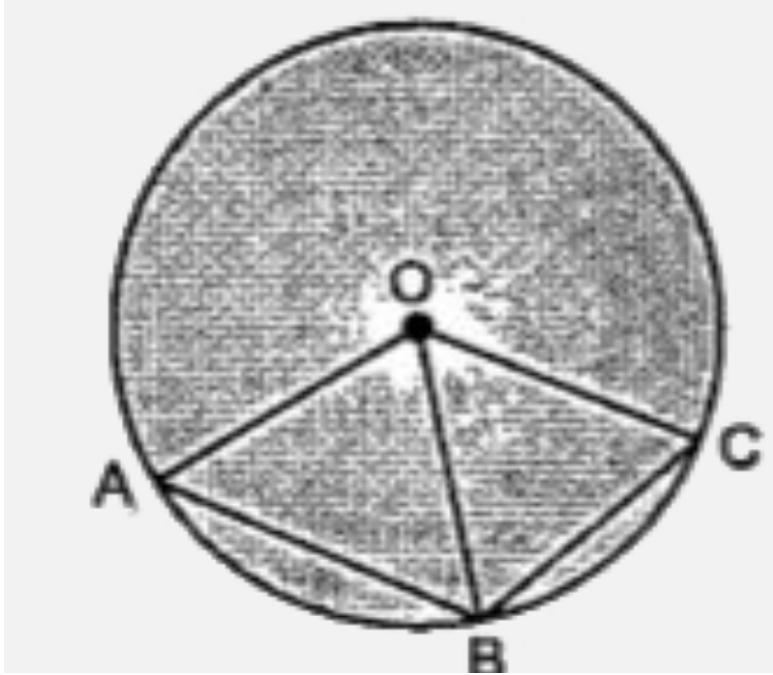


$\angle OBC$



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15. In the given AB is a side of regular pentagon and BC is a side of regular hexagon.



$\angle ABC$



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16. In the given

$AB = BC = DC$ and $\angle AOB = 50^\circ$

$\angle AOC$



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17. In the given

$AB = BC = DC$ and $\angle AOB = 50^\circ$

$\angle AOD$



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18. In the given

$AB = BC = DC$ and $\angle AOB = 50^\circ$

$\angle BOD$



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19. In the given figure, $AB = BC = DC$ and

$$\angle AOB = 50^\circ$$



$\angle OAC$



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20. In the given figure, $AB = BC = DC$ and

$$\angle AOB = 50^\circ$$



$\angle ODA$



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21. Prove that equal chords of congruent circles subtend equal angles at their centre.



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22. In the given figure, AB and CD are two equal chords of a circle, with centre O. If P is the mid-point of chord AB, Q is the mid-point of chord CD and $\angle POQ = 150^\circ$ find $\angle APQ$



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23. In the given figure, 'O' is the centre of the circle, Arc AB = Arc BC = Arc CD. If $\angle OAB = 48^\circ$, find :



(i) $\angle AOB$

(ii) $\angle BOD$



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24. In the given figure, 'O' is the centre of the circle, Arc AB = Arc BC = Arc CD. If

$\angle OAB = 48^\circ$, find :



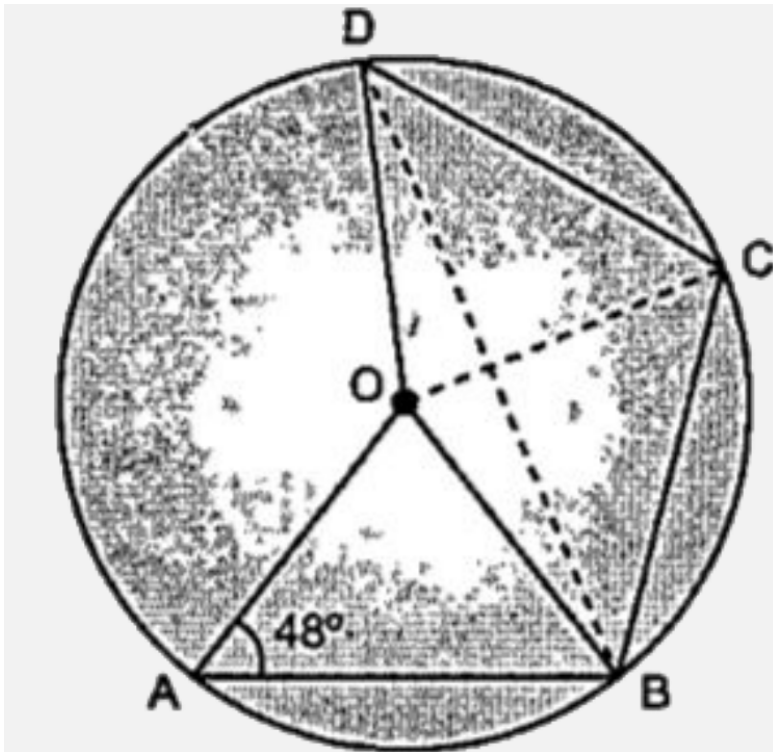
(i) $\angle AOB$

(ii) $\angle BOD$



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25. In the given 'O' is the centre of the circle, $\text{Arc } AB = \text{Arc } BC = \text{Arc } CD$. If $\angle OAB = 48^\circ$, find:



$\angle OBD$





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