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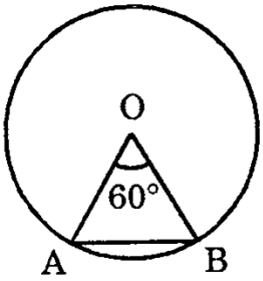
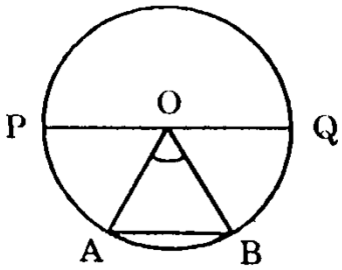
CIRCLES
ASSIGNMENT
CLASS 9

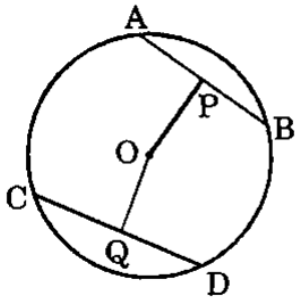
1. In the given figure, AB is a chord of a circle with centre O. If $\angle AOB = 60°$, prove that AB = $\frac{1}{2}$ diameter.



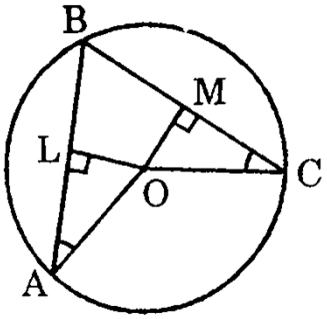
2. In the given figure, AB is a chord of a circle with centre O. If POQ = 2AB, prove that $\angle AOB = 60°$.



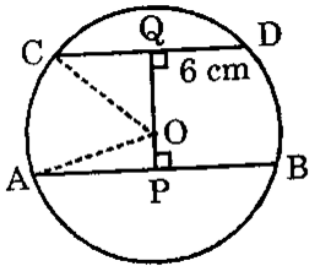
3. In the given figure, AB and CD are two chords of a circle with centre O at distances of 6 cm and 8 cm respectively from O. If the radius of the circle is 10 cm, find the lengths of the chords.



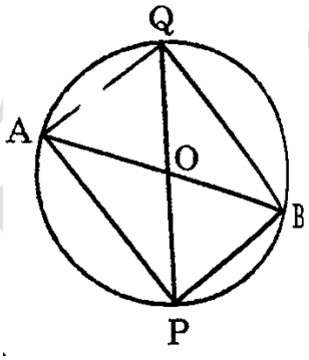
4. In the given figure, O is the centre of the circle, OL is perpendicular to AB and OM is perpendicular to CB. If $\angle OAB = \angle OCB$, then prove that AB = CB.



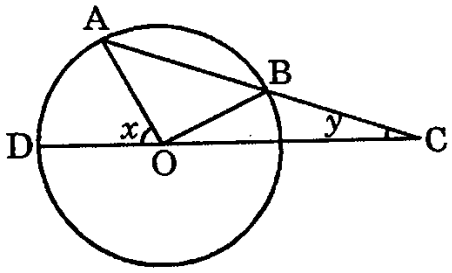
5. In the given figure, AB and CD are two parallel chords of a circle with centre O and radius 5 cm such that AB = 8 cm and CD = 6 cm. If OP is perpendicular to AB and OQ is perpendicular to CD, determine the length of PQ.



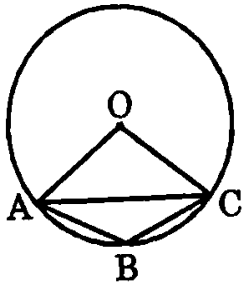
6. In the given figure, a diameter AB of a circle bisects the chord PQ and AQ || BP. Prove that the chord PQ is also a diameter. What is the name given to the quadrilateral AQBP?



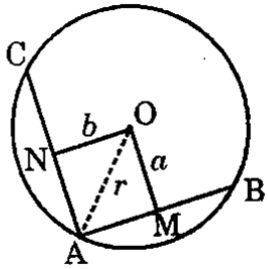
7. In the given figure, AB is a chord of a circle with centre O. AB is produced to C such that BC = OB. Also, CO is joined and produced to meet the circle at D. If $\angle ACD = y$ and $\angle AOD = x$, prove that $x = 3y$. If $\angle AOD = 60°$, find the value of $\angle AOB$.



8. In the given figure, O is the centre of the circle, OC = 5 cm and AB = BC = $2\sqrt{5}$ cm. Find the length of AC.



9. In the given figure, AB and AC are two chords of a circle with centre O and radius r. If AB = 2 AC and the perpendicular drawn from the centre on these chords are of lengths a and b respectively, prove that $4b^2 = a^2 + 3r^2$.



10. Q and R are the centres of two congruent circles intersecting each other at points C and D. The line joining their centres intersects the circle in points A and B such that A and B do not lie between Q and R. If CD = 6 cm and AB = 12 cm, determine the radius of either circle and the distance between the centres of two circles.