

Success Test Series

Level : Easy

Class : Xth

Sub : Maths II (Circle)

Marks : 20

Time : 1 hrs

Q 1. A) Select the appropriate alternative.

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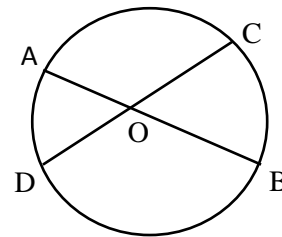
- i) What is the measure of angle inscribed in semicircle arc ?
A) 180° B) 90°
C) 100° D) 50°
- ii) Which of the following are cyclic quadrilateral ?
A) Rectangle and square B) Square and rhombus
C) Parallelogram and rhombus D) Kite and trapezium
- iii) If two circles are touching internally, how many common tangents of them can be drawn ?
A) One B) Two
C) One and only one D) Only two

Q 1. B) Solve the following questions.

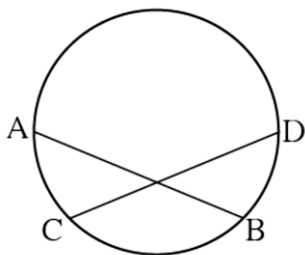
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- i) In figure, $m\angle AOD = 70^\circ$, $m(\text{arc } BC) = 60^\circ$,

Then find $m(\text{arc } AD)$



ii)



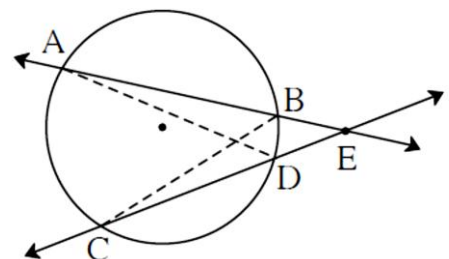
In adjoining figure, $\text{arc } AC \cong \text{arc } BD$ then find
prove that chord $AB \cong \text{chord } CD$.

- iii. $\square \text{MRPN}$ is cyclic, $\angle R = (5x - 13)^\circ$, $\angle N = (4x + 4)^\circ$. Find measures of $\angle R$ and $\angle N$.

Q 2. A) Complete the following activities. (any two)

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- i) If secants containing chords AB and Chord CD of a circle intersect outside the circle in point E, then prove that $AE \times EB = CE \times ED$.



Sol : In $\triangle ADE$ and $\triangle CBE$

$$\angle AED \cong \angle \quad \dots\dots\dots(\text{Common angle})$$

$$\angle DAE \cong \angle BCE \quad \dots\dots\dots(\quad)$$

$$\therefore \triangle ADE \sim \triangle \quad \dots\dots\dots (\text{AA test})$$

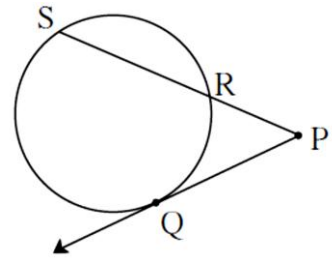
$$\therefore \frac{AE}{?} = \frac{?}{EB} \quad \dots\dots\dots(\quad)$$

$$\therefore \quad = CE \times ED.$$

ii) In fig, seg PQ is a tangent segment.

Line PRS is secant. If PR = 5, RS = 7.8

Then find PQ.



Sol : $\quad = PR + RS \quad \dots\dots (P - R - S)$

$$PS = 7.8 + \quad$$

$$= \quad$$

now $PQ^2 = PR \times \quad \dots\dots (\text{tangent secant segment theorem})$

$$= \quad \times 12.8$$

$$= \quad$$

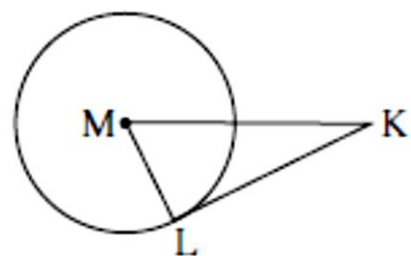
$$\therefore \quad = 8 \text{ units} \quad \dots\dots(\text{taking square root of both sides})$$

iii) In fig, M is the centre of circle and seg KL is a tangent segment.

If MK = 12, $KL = 6\sqrt{3}$ then find

a) radius of the circle.

b) Measure of $\angle K$ and $\angle M$.



Sol : $MK = 12, KL = 6\sqrt{3} \quad \dots\dots\dots (\text{given})$

$$\angle MLK = \quad \dots\dots\dots (\text{tangent theorem})$$

In right angled $\triangle MLK$,

$$KL = \frac{\sqrt{3}}{2} \quad \dots\dots\dots (\text{given})$$

$$\therefore \angle M = \quad \dots\dots(\text{by converse of } 30^\circ - 60^\circ - 90^\circ \text{ theorem})$$

and $\angle \quad = 30^\circ$

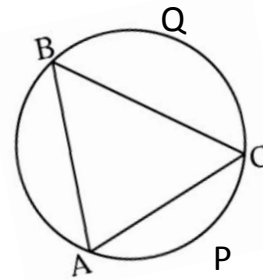
$\therefore \triangle MLK$ is $30^\circ - 60^\circ - 90^\circ$

$$ML = r = \frac{1}{2} \boxed{} = 6 \text{ units} \dots\dots\dots (\text{opposite side of } 30^\circ)$$

Q 2. B) Solve the following questions. (Any two)

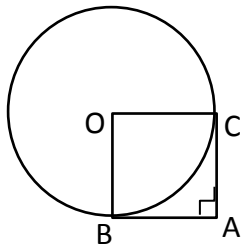
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- i) in fig , $m(\text{arc APC}) = 60^\circ$, $m\angle BAC = 80^\circ$
then find a) $\angle ABC$ b) $m(\text{arc BQC})$



- ii) prove that, opposite angles of cyclic quadrilateral are supplementary.

iii)

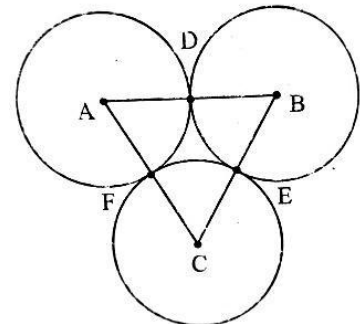


In fig , A is external point of circle with centre O.
AB & AC are tangents drawn from A, $BA \perp CA$.
Then show that $\square BACO$ is a square.

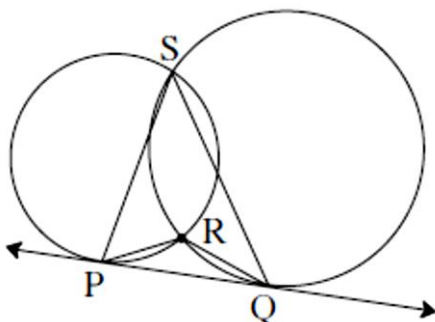
Q 3. Solve the following questions. (Any one)

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- i) In fig three congruent circles with centers A, B and C with radius 5 cm each, touch each other in points D, E and F respectively. Then
a) What is the perimeter of $\triangle ABC$?
b) What is the length of side DE of $\triangle DEF$?



ii)



In fig, two circles intersect each other at points S and R respectively. Their common tangents the circle at points P and Q. then prove that

$$\angle PSQ + \angle PRQ = 180^\circ$$
