SOL HW Ch7.4

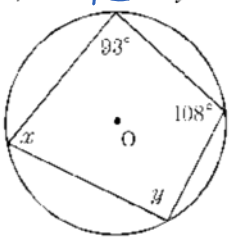
June 1, 2016 10:22 AM

Name: Keys Date:

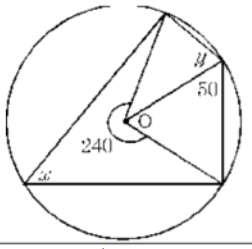
Math 9 Enriched: Assignment 7.4 Cyclic Quadrilateral

1. Find the value of the missing angle:

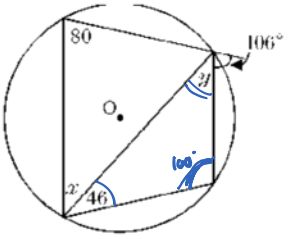
a) $x = 72$ $y = 87$



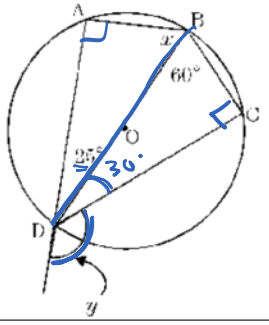
b) $x = 60$ $y = 70$



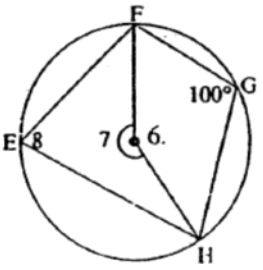
c) $x = 60$ $y = 34$



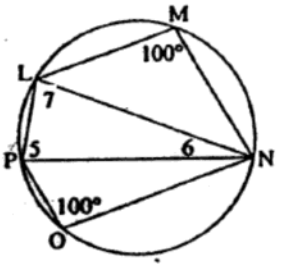
d) $x = 65°$ $y = 125°$



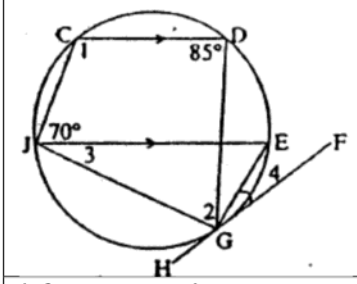
e) $\angle 6 = 160°$ $\angle 7 = 200°$ $\angle 8 = 80°$



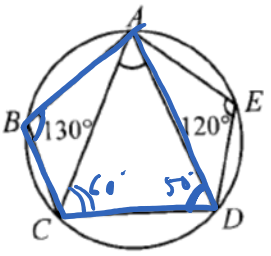
f) $\angle 5 = 80$ $\angle 6 = 20°$ $\angle 7 = 80°$



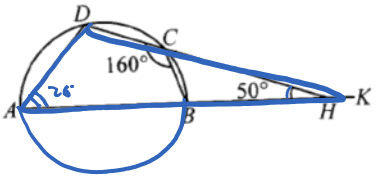
g) $\angle 1 = 110°$ $\angle 2 = 70°$
$\angle 3 = 25°$ $\angle 4 = 25°$



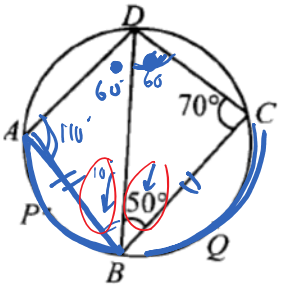
h) $\angle CAD = 70°$



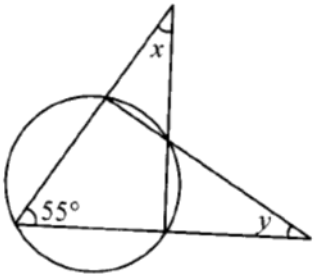
i) $\angle ADH = 110°$



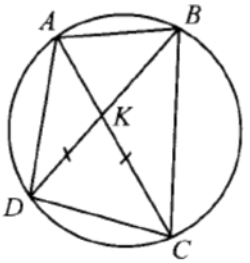
j) If arc APB equals arc BQC,
$\angle ADC = 120°$ $\angle ABD = 10°$



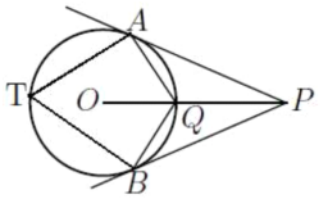
k) $x + y = 70°$



l) Given that $\angle ABC = 92°$,
$\angle ADB = 42°$, KD = KC, find
$\angle BKC = 92°$

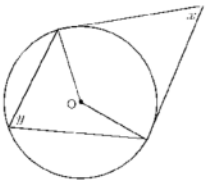


2. The diagram shows a circle, and two tangent lines PA and PB. The points A, B, and Q are on the circle, and Q is on the line semgent that joins the centre O of the circle to P. Suppose that the measure of $\angle APB = 34°$, what is the degree measure of $\angle ATB$?



73°

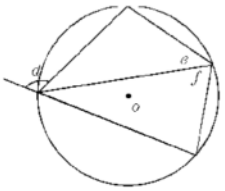
3. In the given diagram with center O, express "y" as a function of "x".



$\frac{180 - x}{2} = y$

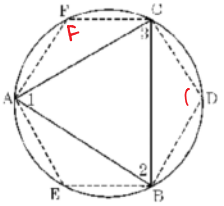
$90 - \frac{x}{2} = y$

4. Write an equation relating angles d, e, and f:



$d = e + f$

5. Given triangle ABC is inscribed in the circle and point D, E, and F are on the circle as shown. Prove that $\angle D + \angle E + \angle F = 360°$.



$\angle F + \angle 2 = 180$

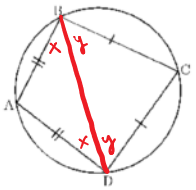
$\angle D + \angle 1 = 180$

$\angle E + \angle 3 = 180$

$\angle F + \angle E + \angle D + (\angle 1 + \angle 2 + \angle 3) = 180 \times 3$

$\angle D + \angle E + \angle F = 180 \times 2.$

6. Given that quadrilateral ABCD is cyclic, prove that $AB \perp BC$.

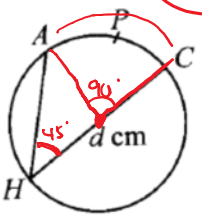


$2x + 2y = 180$

$x + y = 90$

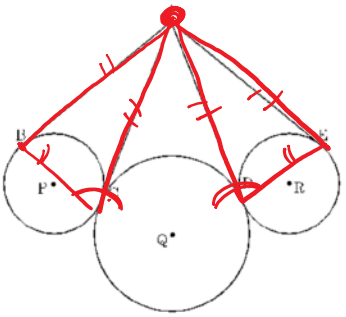
7. In the figure, $\angle AHC = 45°$ and diameter $CH = d$ cm. Find the length of the arc APC: MC choose one:

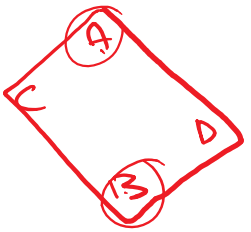
a) $\frac{d\pi}{8} cm$ b) $\frac{d\pi}{4} cm$ c) $d\pi\ cm$ d) $4d\pi\ cm$



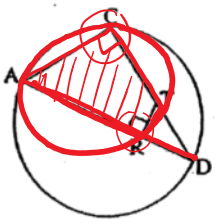
$arc = \frac{\pi d}{4} = \frac{\text{Circumference}}{4}$.

8. Given that following diagram below, prove that quadrilateral BCDE is a cyclic quadrilateral.



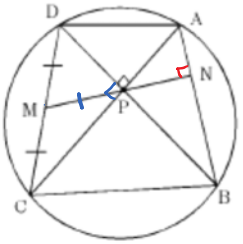


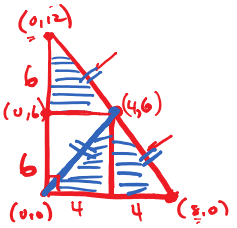
9. Given that $TR \perp AD$, prove that CART is a cyclic quadrilateral:



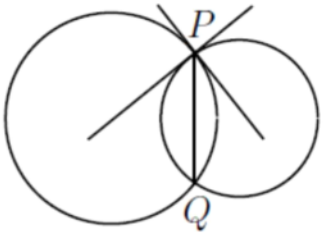
B/C $\angle ACT + \angle ARC = 180°$
opp $\angle$'s in a QUADRILATERAL
THAT ADDS UP will be a CQ.

10. In cyclic quadrilateral ABCD, $AC \perp DB$. Prove that $MN \perp AB$.



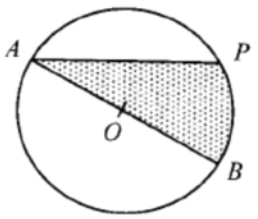


11. A circle of radius 3 meets a circle of radius 4 at points P and Q. The tangent lines at P to the two circles are perpendicular to each other. What is the length of the line segments PQ? Express the answer as a decimal, to the nearest tenth.

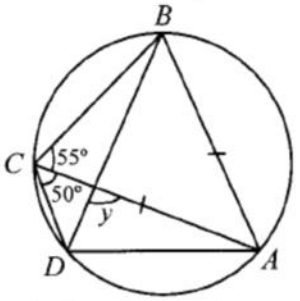


12. In the diagram below, AOB is a diameter of the circle with centre O and radius 1cm. If $\angle PAB = 60°$, which of the following expressions is the correct one for the area of the shaded region?

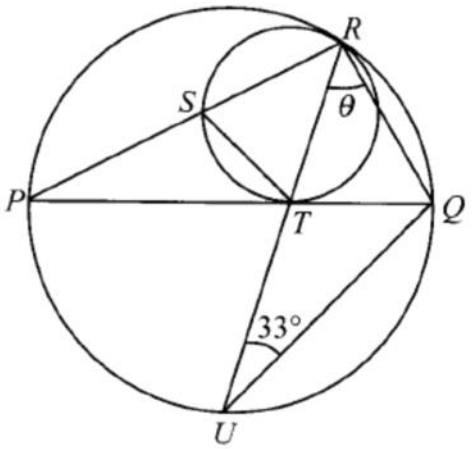
$a)\left(\frac{\sqrt{3}}{2}+\frac{\pi}{3}\right)cm^2$ $b)\left(\frac{\sqrt{3}}{4}+\frac{\pi}{3}\right)cm^2$ $c)\left(\frac{\sqrt{3}}{2}+\frac{2\pi}{3}\right)cm^2$ $d)\left(\frac{\sqrt{3}}{4}+\frac{2\pi}{3}\right)cm^2$



13. Given that AB = AC, find the value of angle "y".

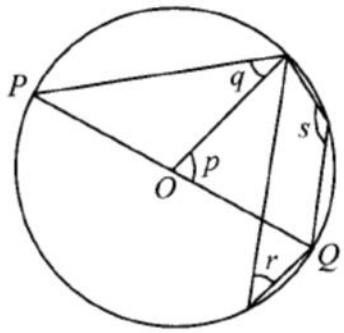


14. In the figure below, the two circles intersect at point "R". The diameter PQ of the bigger circle is tangent to the smaller circle at point "T". If TS bisects $\angle PTR$, find the value of θ.



15. In the figure below, POQ is a diameter of the circle with centre O. Which of the following statments are correct?

$I)\ p = 2q$ II) $q = r$ $III)\ p + s = 180°$



(b) In triangle ABC, $AB = BC = 25$ and $AC = 30$. The circle with diameter BC intersects AB at X and AC at Y. Determine the length of XY.