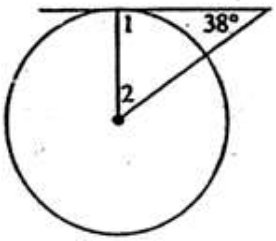
Name:_____ Date:_____

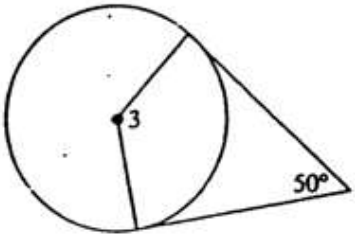
Math Challengers Assignment 17 Tangents to a Circle:

1. Find the measure of the missing angles:

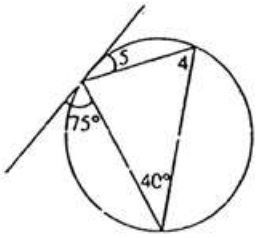
a) $\angle 1 =$ _____ $\angle 2 =$ _____



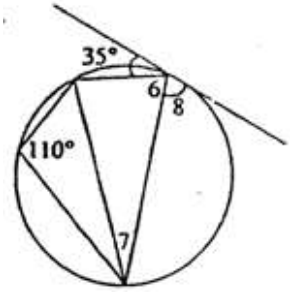
b) $\angle 3 =$ _____



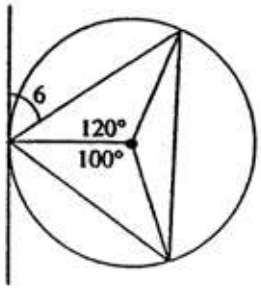
c) $\angle 4 =$ _____ $\angle 5 =$ _____



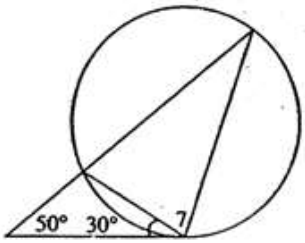
d) $\angle 6 =$ _____ $\angle 7 =$ _____



e) $\angle 6 =$ _____

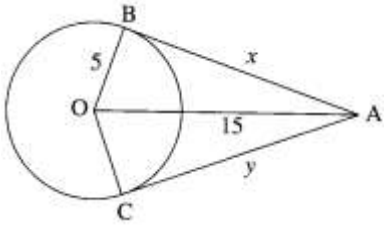


f) $\angle 7 =$ _____

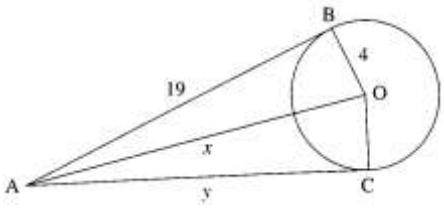


2. Find the length of the missing sides "x" and "y":

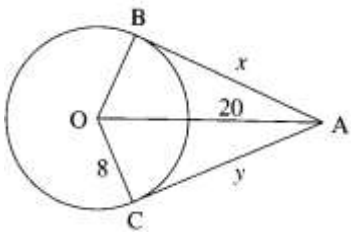
a)



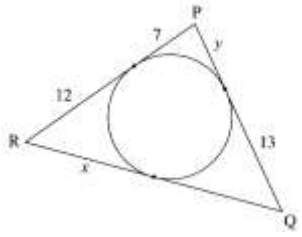
b)



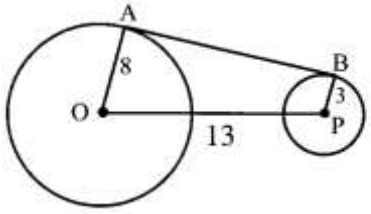
c)



d)

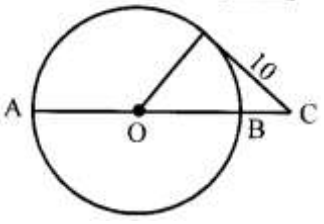


e)

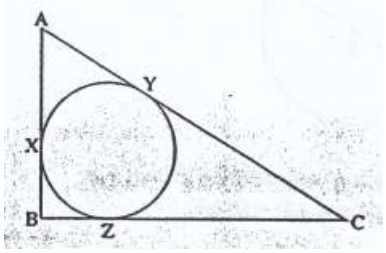


AB =

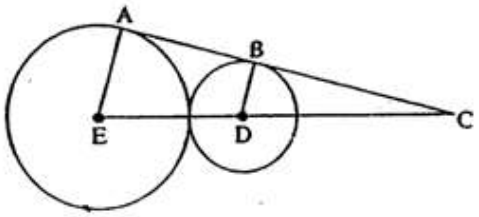
AC = 20 BC = ____



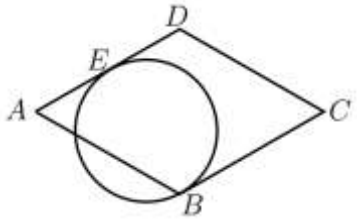
3. Given that side BC = 6cm, ZC = 4cm, and AX = 3cm, what is the perimeter of the triangle ABC?



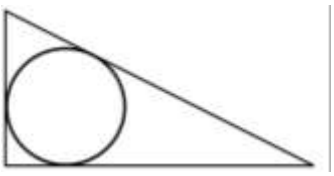
4. If EC =26cm and ED = 13cm, how long is length BD?



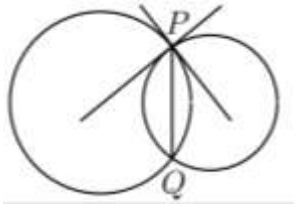
5. A rhombus ABCD has sides 1, and angle DAB is 60 degrees. A circle is tangent to line BC at B, and is tangent to the line segment AD at a point "E" between "A" and "D". Find the area of the region which is inside the rhombus and also inside the circle.



6. A circle is inscribed in a right triangle with legs $\sqrt{2}$ and $2\sqrt{2}$. What is the area of the circle? Give your answer in exact form:



7. 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 segment PQ?



8. Challenge: Triangle ABC has AB=10, AC=14. The three heights AR, BQ, and CP are drawn and meet at "O". The distance AP is equal to 6. Let OQ = 'x' , which is the radius and point "O" is the centre of the circle. What is the area of the circle?