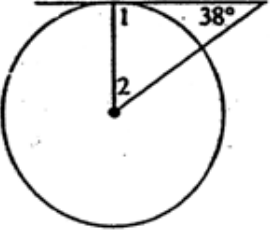
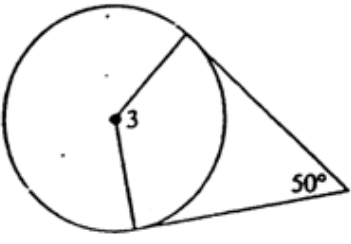
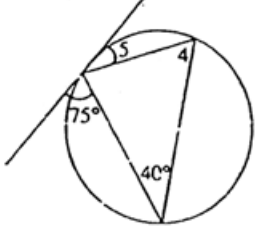
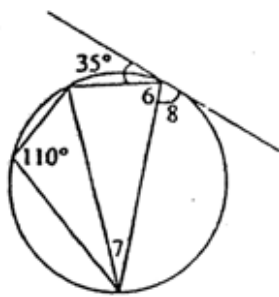
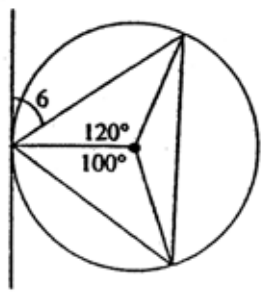
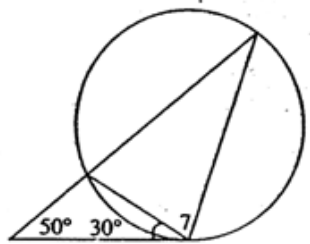


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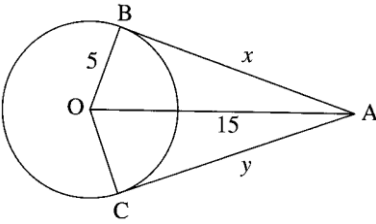
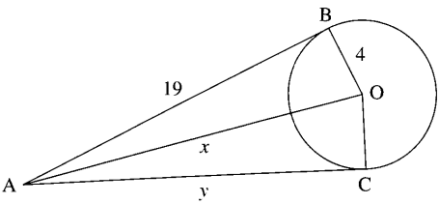
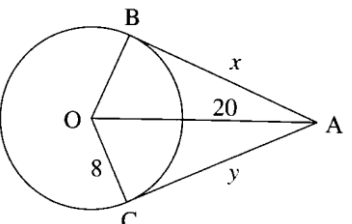
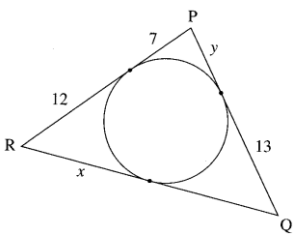
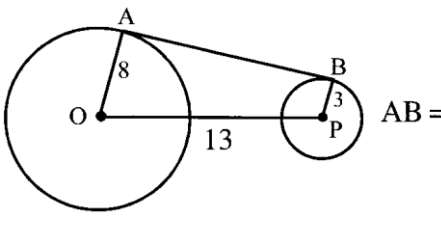
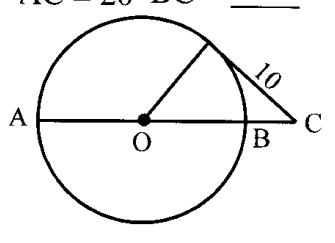
Date: _____

Math Challengers Assignment 5.3 Tangents to a Circle:

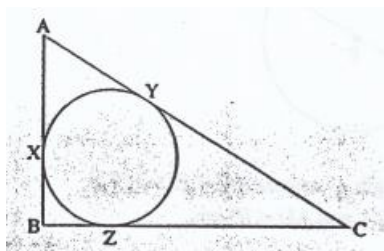
1. Find the measure of the missing angles:

<p>a) $\angle 1 = \underline{\hspace{1cm}}$ $\angle 2 = \underline{\hspace{1cm}}$</p> 	<p>b) $\angle 3 = \underline{\hspace{1cm}}$</p> 	<p>c) $\angle 4 = \underline{\hspace{1cm}}$ $\angle 5 = \underline{\hspace{1cm}}$</p> 
<p>d) $\angle 6 = \underline{\hspace{1cm}}$ $\angle 7 = \underline{\hspace{1cm}}$</p> 	<p>e) $\angle 6 = \underline{\hspace{1cm}}$</p> 	<p>f) $\angle 7 = \underline{\hspace{1cm}}$</p> 

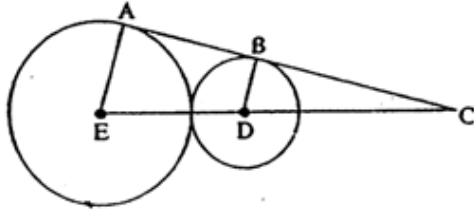
2. Find the length of the missing sides "x" and "y":

<p>a)</p> 	<p>b)</p> 	<p>c)</p> 
<p>d)</p> 	<p>e)</p> 	<p>AC = 20 BC = _____</p> 

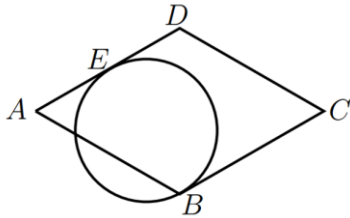
3. Given that side BC = 6cm, ZC = 4cm, and AX = 3cm, what is the perimeter of the triangle ABC?



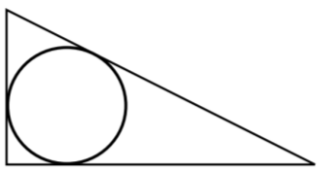
4. If $EC = 26\text{cm}$ and $ED = 13\text{cm}$, how long is length BD ?



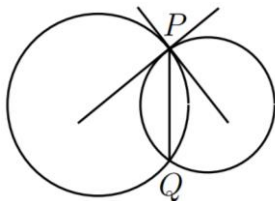
5. A rhombus $ABCD$ has sides 1, and angle DAB is 60 degrees. A circle is tangent to line BC at B , and is tangent to the line segment AD at a point "E" between "A" and "D". Find the area of the region which is inside the rhombus and also inside the circle.



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?

