**11.7 Homework: Circle Angles**

1. What are the coordinates of the center and the length of the radius of the circle whose equation is $(x-7)^2+(y+1)^2=16$?

   (a) center $(-7,1)$ and radius 4

   (b) center $(7,-1)$ and radius 8

   (c) center $(-7,1)$ and radius 8

   (d) center $(7,-1)$ and radius 4

2. Given $A(-1,2)$ and $B(-6,14)$, find the length of $\overline{AB}$. Show the substitution into the distance formula.

3. Two lines intersect to make four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$, as shown.

   (a) How are $\angle 1$ and $\angle 2$ related?

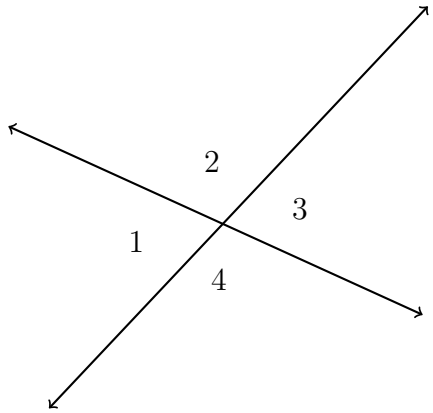
   ☐ Vertical angles

   ☐ Complementary angles

   ☐ Supplementary angles

   ☐ Opposite angles

   ☐ Linear pair




   (b) Given $m\angle 1 = 75°$.

   i. Find $m\angle 3$

   ii. Find $m\angle 4$

4. A regular heptagon (7 sides) is inscribed in a circle with a radius $r = 14$. Find each value (in terms of $\pi$ unless otherwise instructed).

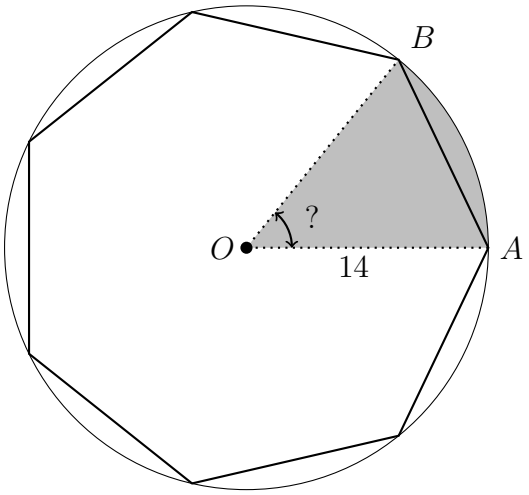
   (a) $m\angle AOB$ to the *nearest degree.*

   (b) The circle circumference. $(C = 2\pi r)$

   (c) The length of the arc $\overset{\frown}{AB}$

   (d) The circle's area. $(A = \pi r^2)$

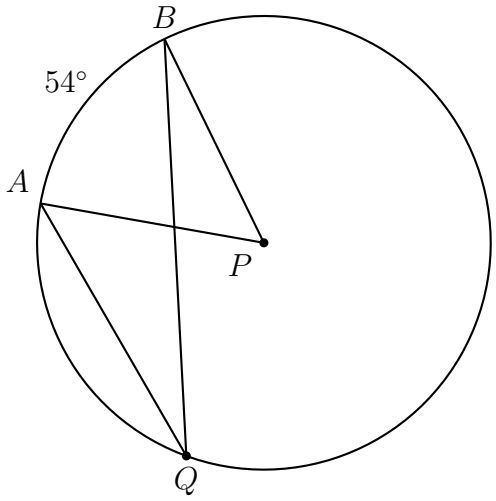
   (e) The sector area (shaded)




5. Given circle $P$ with $m\widehat{AB} = 54°$.

   (a) Write down the $m\angle APB$.

   (b) Find the $m\angle AQB$.



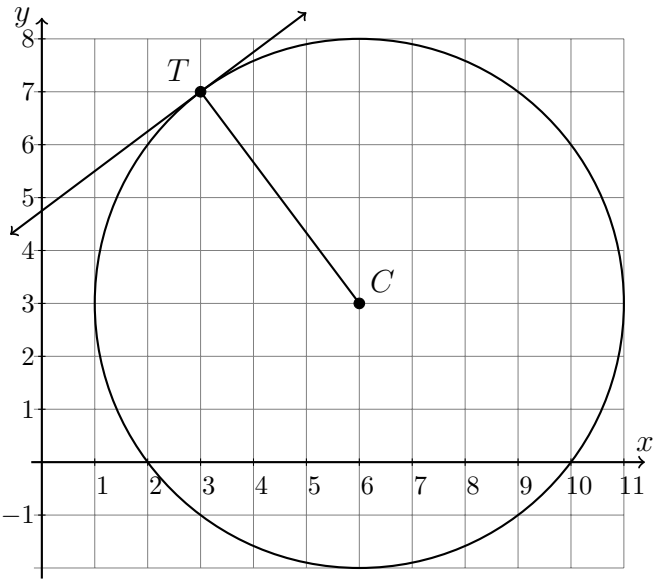

6. A circle on the coordinate plane has center $C$ and radius $\overline{CT}$. A tangent line through point $T$ is drawn, as shown.

   (a) Write down the center of the circle as a coordinate pair.

   (b) Write down the equation of the circle.

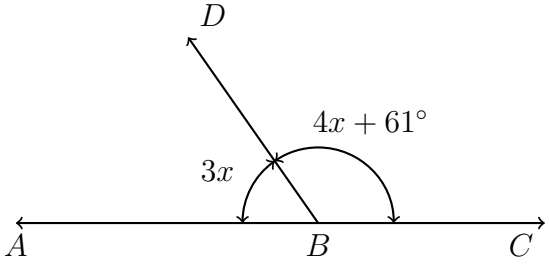
   (c) What is the slope of the radius $\overline{CT}$?

   (d) Find the slope of the tangent line.




7. Two supplementary angles have measures $m\angle ABD = 3x$ and $m\angle DBC = 4x + 61°$.

   Write an equation applying the angle addition theorem, then find $x$.



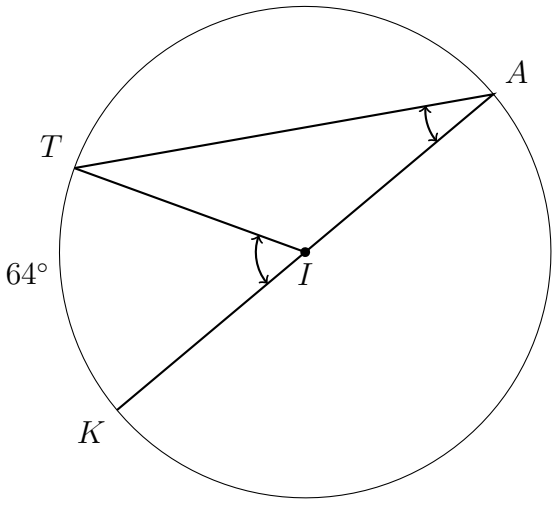

8. Given circle with center $I$ and $m\widehat{KT} = 64°$. Find the measure of each angle.

   (a) $m\angle KIT$

   (b) $m\angle KAT$

   (c) $m\angle TIA$

   (d) $m\angle ATI$



9. Line segment $\overline{AB}$, $A(2, -1)$, $B(10, 5)$, is the diameter of circle $M$.

   (a) On the grid, mark and label as a coordinate pair the midpoint of the segment, the circle center $M$.

   (b) Calculate the length of $\overline{AB}$ and hence, the radius of the circle.

   (c) Write down the equation of the circle.

   (d) Sketch the circle on the grid or draw it with Geogebra or Graspable Math.