7.10 PreTest 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

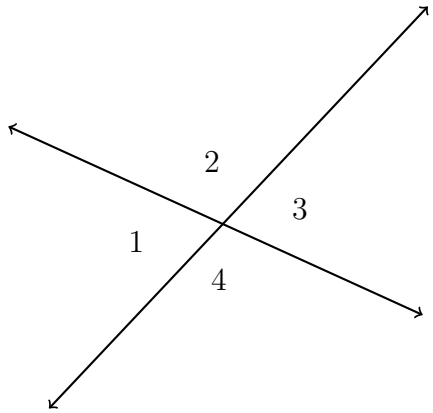
   (b) center $(7,-1)$ and radius 8

   (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.

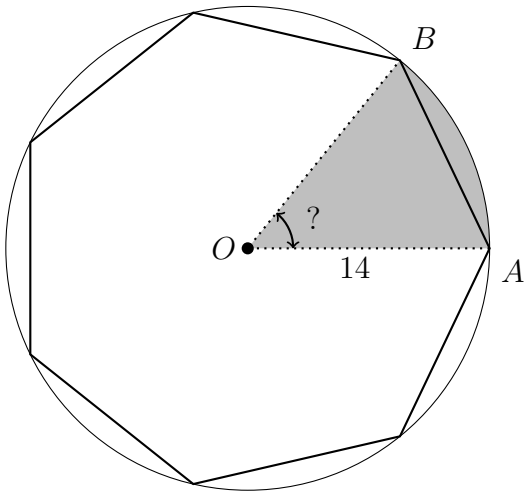


   (a) How are $\angle 1$ and $\angle 2$ related?
      - Vertical angles
      - Complementary angles
      - Supplementary angles
      - Opposite angles
      - Linear pair

   (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 π if appropriate):



(a) $m\angle AOB$

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

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

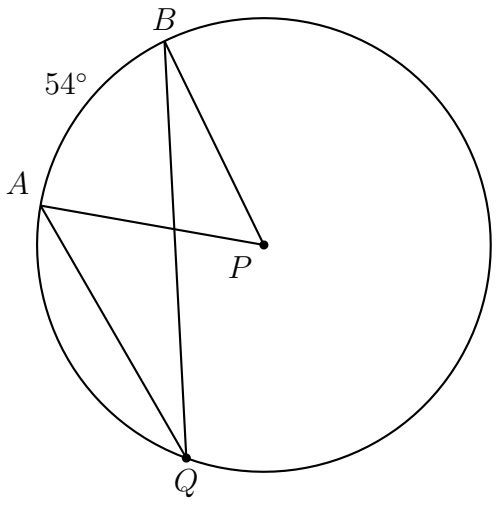
(d) The circle's area. ($A = \pi r^2$)

(e) The sector area (shaded)

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

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

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



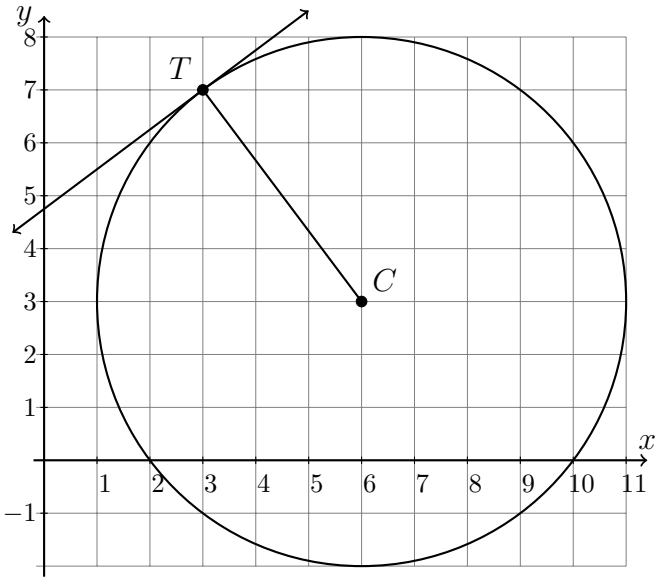
6. A circle on the coordinate plane has center C and radius $\overline{CT}$. A tangent line through point T is shown.

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

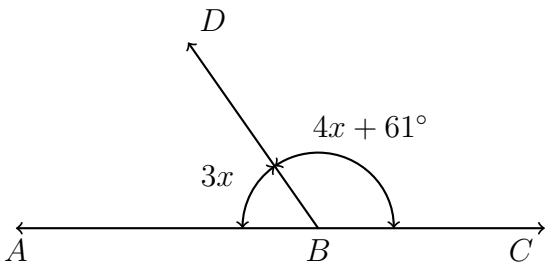
   (b) Write down the equation of the circle.

   (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.



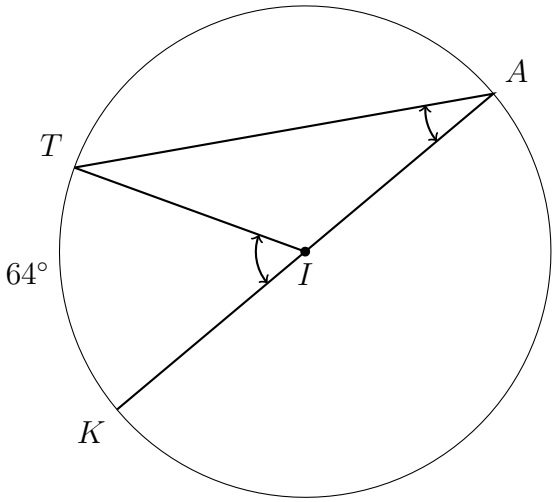
8. Given circle with center I and $m\widehat{KT} = 64°$. Find the measure of each angle.

(a) $m\angle KIT$

(b) $m\angle KAT$

(c) $m\angle TIA$

(d) $m\angle ATI$



9. What is the equation of a circle with center $(4, -6)$ and radius $r = 4$?

   Graph the circle in Graspable Math or Geogebra and paste the image here.

10. 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.