

### 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.

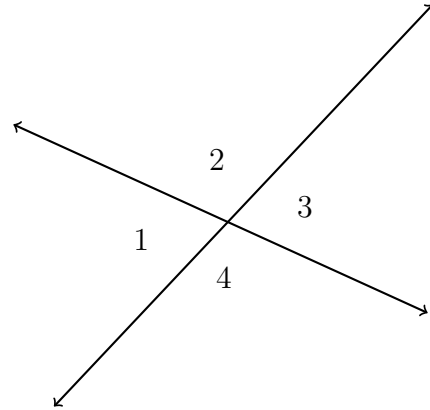
(a) How are  $\angle 1$  and  $\angle 2$  related?

- ☐ Vertical angles
- ☐ Complementary angles
- ☐ Supplementary angles
- ☐ Opposite angles
- ☐ Linear pair

(b) Given  $m\angle 1 = 75^\circ$ .

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).

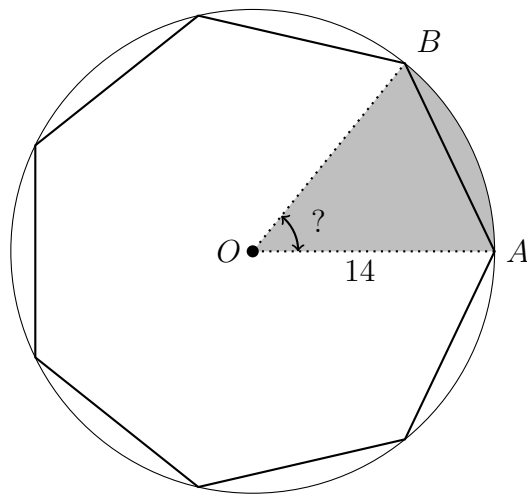
(a)  $m\angle AOB$  to the nearest degree.

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

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

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

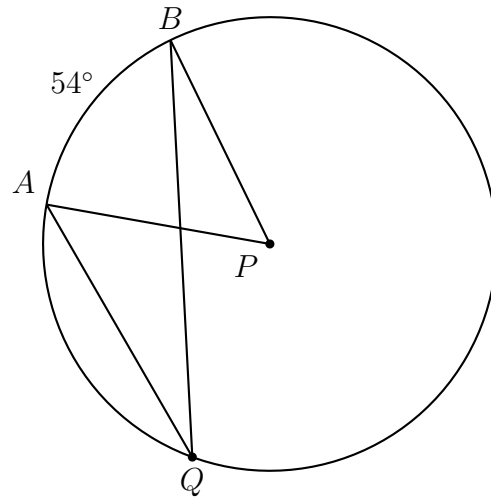
(e) The sector area (shaded)



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

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

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



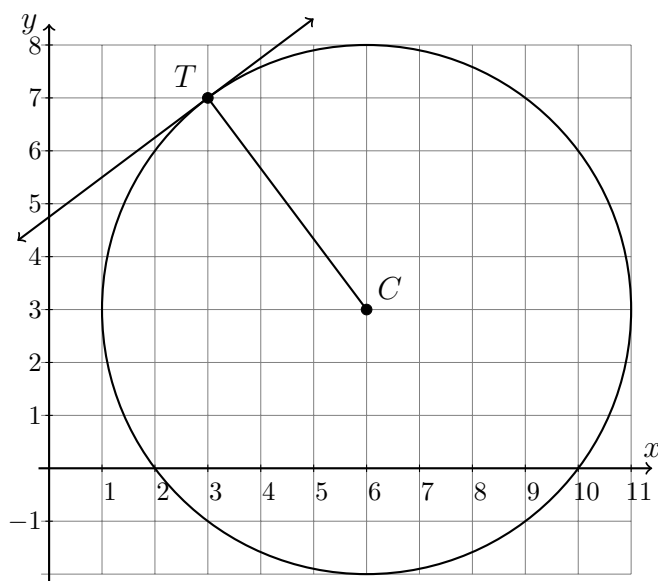
6. A circle on the coordinate plane has center  $C$  and radius  $\overline{CT}$ . A tangent line through point  $T$  is drawn, as shown.

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

(b) Write down the equation of the circle.

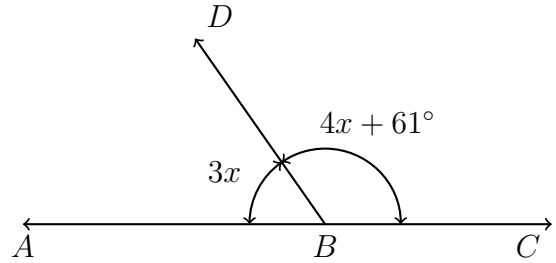
(c) What is the slope of the radius  $\overline{CT}$ ?

(d) Find the slope of the tangent line.



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

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



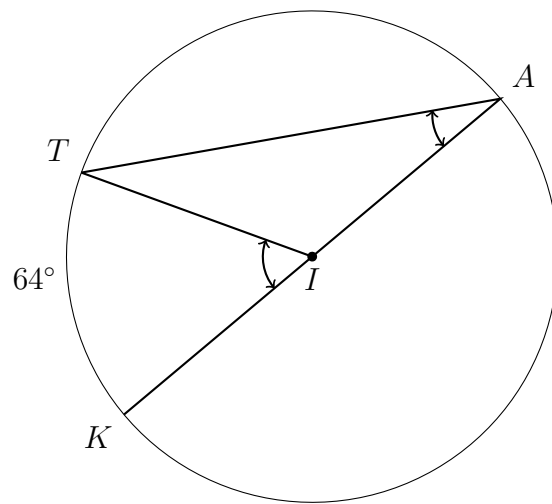
8. Given circle with center  $I$  and  $m\widehat{KT} = 64^\circ$ . Find the measure of each angle.

(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.

