7.6 Circles, chords, and interior angles

1. Do Now: The equation of a cirle is $(x+4)^2+(y-6)^2=144$. What are the coordinates of the center and the length of the radius of the circle?

   (a) center $(4,-6)$ and radius 12

   (b) center $(-4,6)$ and radius 12

   (c) center $(4,-6)$ and radius 144

   (d) center $(-4,6)$ and radius 144

2. Do Now: What are the coordinates of the center and the length of the radius of the circle whose equation is $(x-3)^2+(y-5)^2=16$?

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

3. Do Now: What is the equation of a circle with center $(5, 7)$ and radius $r = 3$?

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

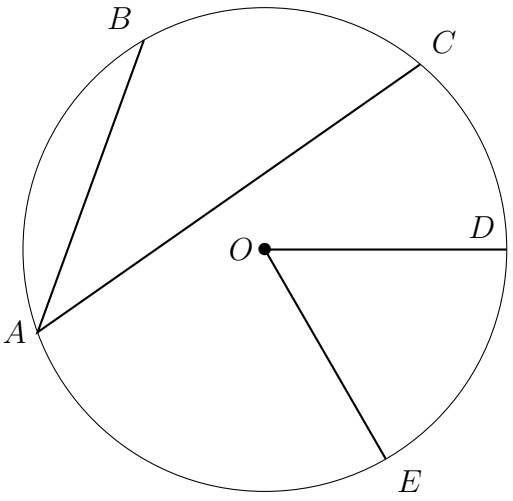
4. Lesson: Given circle O with points on the circle A, B, C, D, E.

   (a) Highlight the two radii $\overline{OD}$ and $\overline{OE}$

   (b) The segments $\overline{AB}$ and $\overline{AC}$ are called *chords* (pronounced with a hard "c", *kord*)

   (c) The angle with the circle's center as its vertex is called a *central angle*, $\angle DOE$

   (d) The angle with its vertex on the circle is called an *inscribed angle*, $\angle BAC$



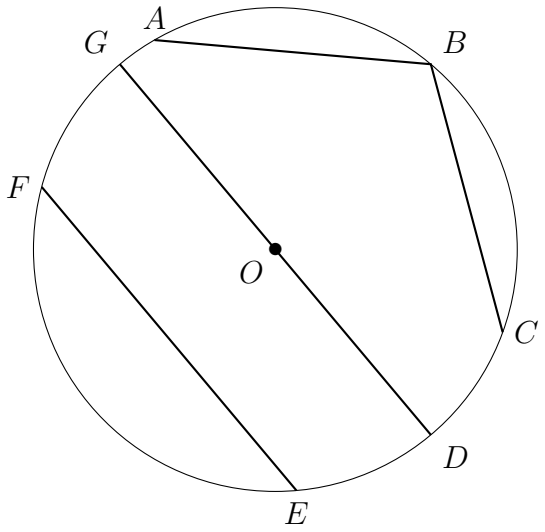
5. Highlight elements in circle O with the required colors.

   (a) The chords in yellow

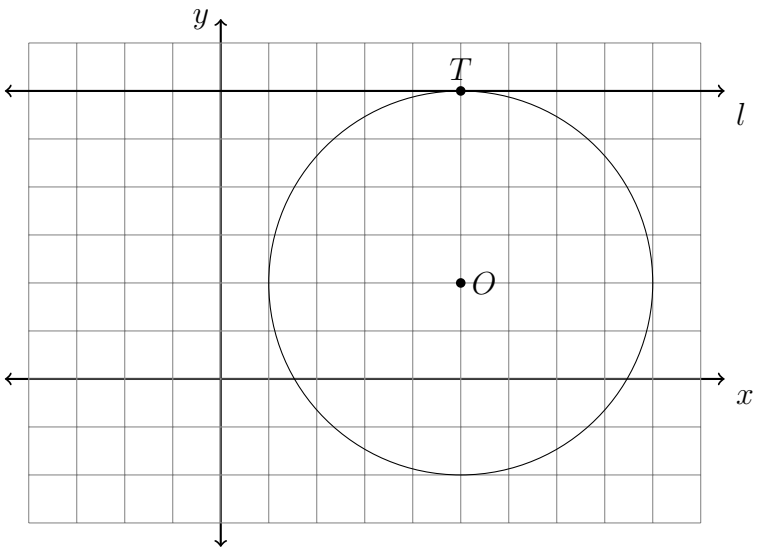
   (b) The diameter in red

   (c) The vertex of the inscribed angle in blue

   (d) What is the measure of the central angle, $\angle DOG$?



6. What is an equation of circle O shown in the graph below?



(a) $(x-5)^2+(y-2)^2=16$

(b) $(x+5)^2+(y+2)^2=8$

(c) $(x+2)^2+(y+5)^2=8$

(d) $(x-2)^2+(y-5)^2=16$

Write down the coordinates of the point of tangency T and the equation of the tangent line l.

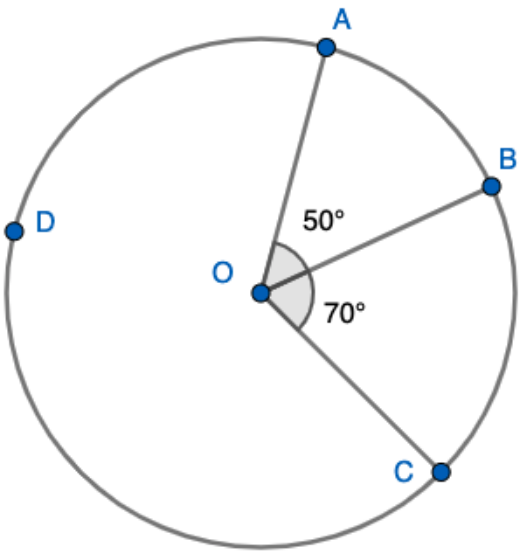
7. Given circle O with points on the circle A, B, C, D as shown. Find each central angle measure.

   (a) $m\angle AOB =$

   (b) $m\angle BOC =$

   (c) $m\angle AOC =$

   (d) What is the measure of the *reflex angle* $m\angle AOC =$, i.e. the one containing point D that is $> 180°$



https://www.geogebra.org/calculator/xqketuwj

8. What are the coordinates of the center and the length of the radius of the circle whose equation is $(x+4)^2+(y-3)^2=16$?

   (a) center $(-4,3)$ and radius 8

   (b) center $(4,-3)$ and radius 4

   (c) center $(-4,3)$ and radius 4

   (d) center $(4,-3)$ and radius 8

9. What is the equation of a circle with center $(-3, 7)$ and radius $r = 6$?

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

10. Given $A(-1, 2)$ and $B(3, 5)$, find the length of $\overline{AB}$. Show the substitution into the distance formula.

11. Find the volume of a pyramid ($V = \frac{1}{3}Bh$) having a height of 11.3 inches and with a square base having side lengths of 7 inches. Express your result to the *nearest cubic inch*.

12. Find the volume of a hemisphere with a radius of 30 inches, to the *nearest whole cubic inch*. (The formula for the volume of a *sphere* is $V = \frac{4}{3}\pi r^3$ and a *hemisphere* is half of a sphere.)