7.7 Circle arc measures and lengths

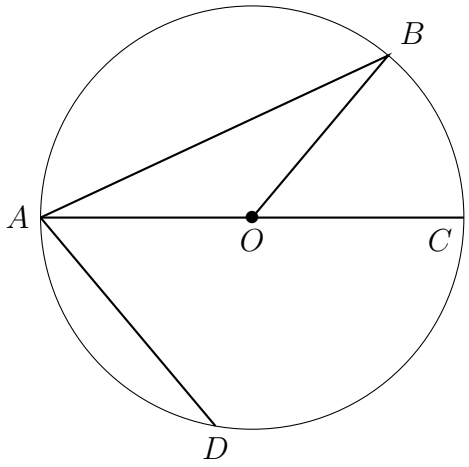
1. Do Now: What is the equation of a circle with center $(-2, 5)$ and radius $r = 4$?

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

2. Do Now: What are the coordinates of the center and the length of the radius of the circle whose equation is $(x-7)^2+(y+1)^2=9$?

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

3. Given circle O with various internal line segments as shown.



(a) Highlight each radius in red

(b) Highlight any chords in yellow

(c) Is the $\angle CAD$ an inscribed angle or a central angle?

(d) Is $\triangle AOB$ an equilateral triangle, isosceles triangle, or a scalene triangle?

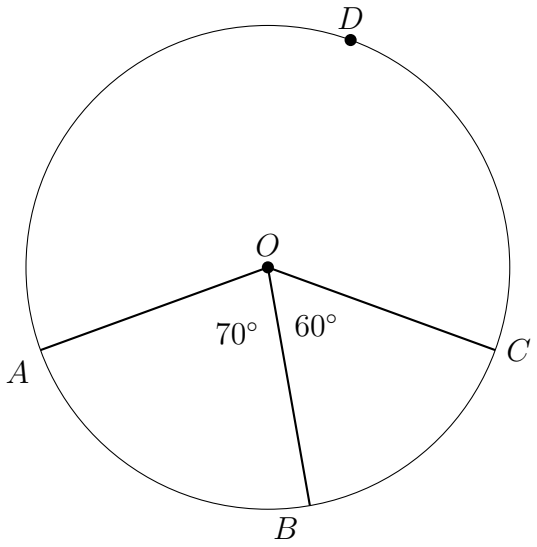
4. Given circle O with points on the circle A, B, C, D as shown. Find each central angle measure.

   (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 $> 180°$



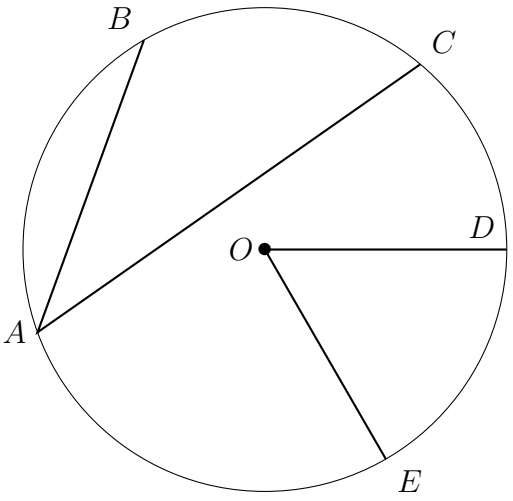
5. Lesson: Given circle O with points on the circle A, B, C, D, E.

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

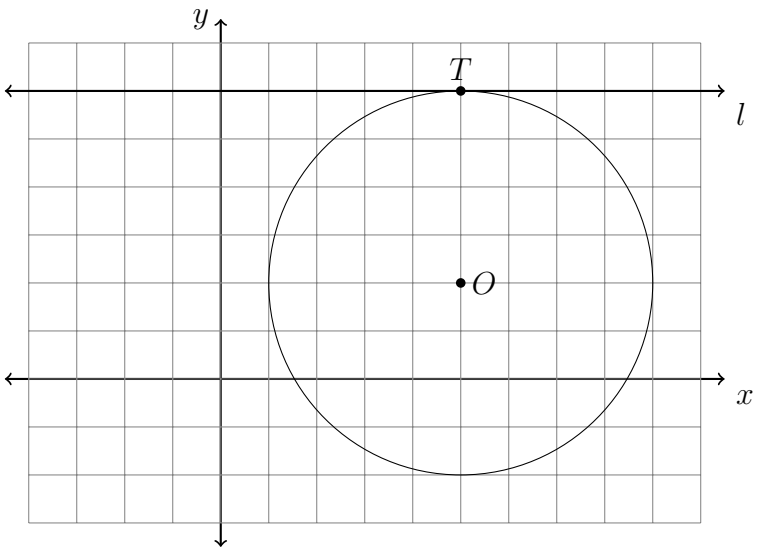
   (b) The segments $\overline{AB}$ and $\overline{AC}$ are called *chords* (pronounced with a hard "c", *kord*)

   (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*, $\angle BAC$



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.

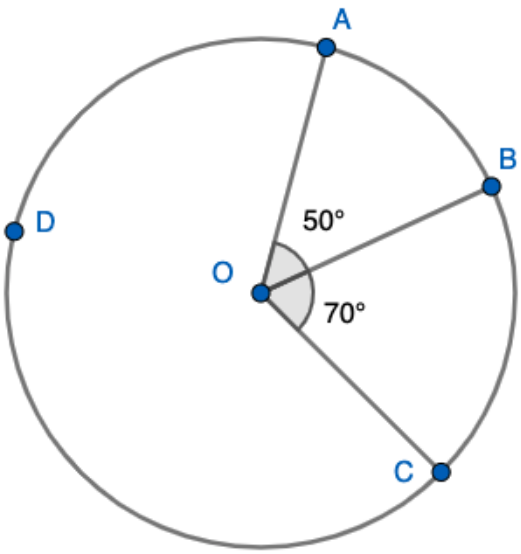
7. Given circle O with points on the circle A, B, C, D as shown. Find each central angle measure.

   (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.

12. 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*.

13. 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.)