Write an equation of a circle with diameter $\overline{AB}$.

$(x-h)^2+(y-k)^2=r^2$

Center (h,k)

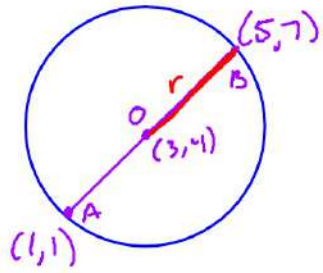
Radius r

A(1, 1) B (5, 7)

midpt $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$\left(\frac{1+5}{2}, \frac{1+7}{2}\right)$

$\boxed{(3,4)}$



$r=\sqrt{(3-1)^2+(4-1)^2}$

$=\sqrt{2^2+3^2}$

$=\boxed{\sqrt{13}}$

$(x-3)^2+(y-4)^2=13$

$(x-h)^2+(y-k)^2=r^2$

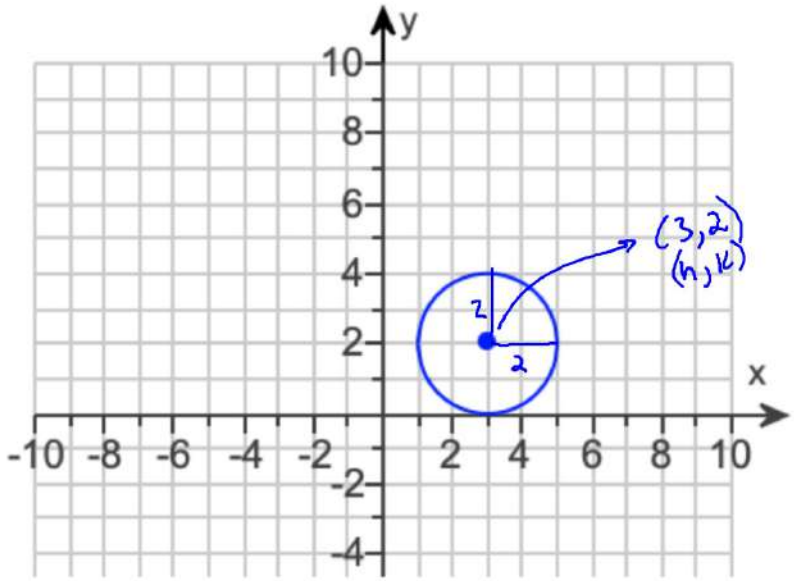
Determine the center and radius of the circle described by the equation.

$(x+3)^2+(y-4)^2=36$

$C=(-3,4)$

$r=6$

Write the equation of the circle.



$(x-h)^2+(y-k)^2=r^2$

$(x-3)^2+(y-2)^2=4$

Determine whether the point (3,6) lies on the circle with radius 7 and center (−2,1).

$d = \sqrt{(3+2)^2+(6-1)^2}$

$= \sqrt{5^2+5^2}$

$= \sqrt{25+25} = \sqrt{50}$

$\sqrt{50} \neq 7$

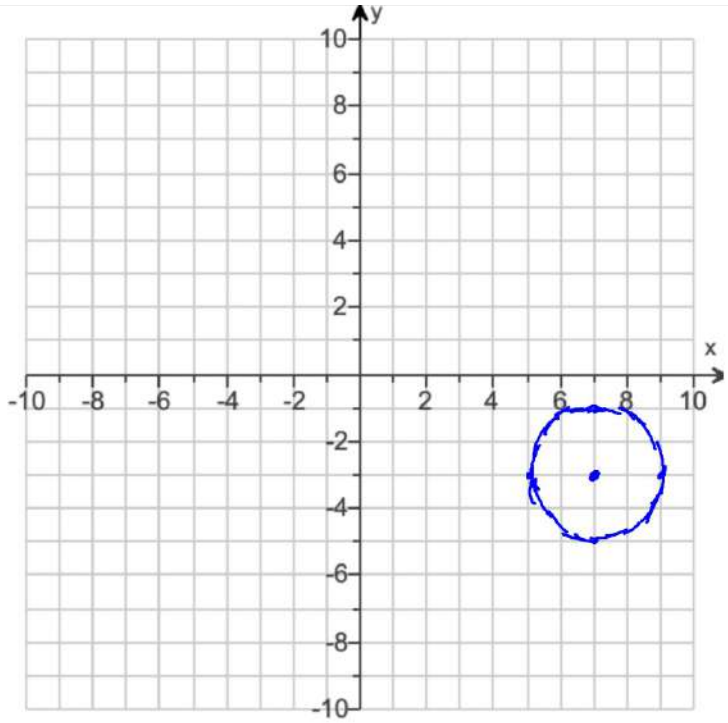
No (3,6) is not on Circle

Graph the circle.

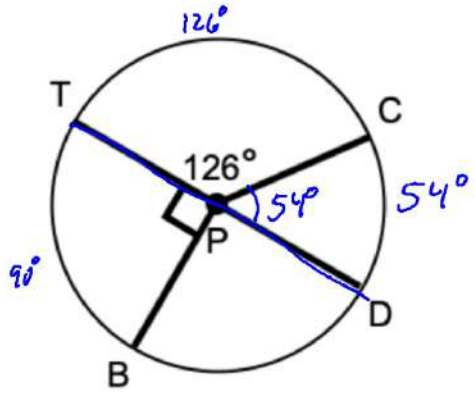
$(x-7)^2+(y+3)^2=4$

Center = $(7,-3)$

$r=2$



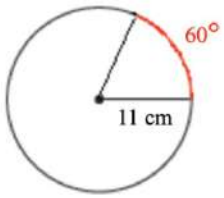
Find the measure of arc $\overset{\frown}{CD}$ in $\odot P$.



What is the length of the arc shown in red?

n = Central $\angle$ measure

r = Radius



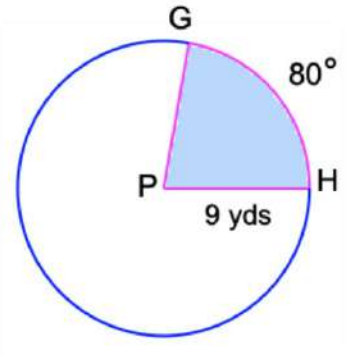
$$S = \frac{n}{360} \cdot 2\pi r$$

$$= \frac{60}{360} \cdot 2\pi(11)$$

$$= \frac{1}{6} \cdot 22\pi$$

$$= \frac{22\pi}{6} = \frac{11\pi}{3} \text{ cm}$$

What is the area of sector GPH?



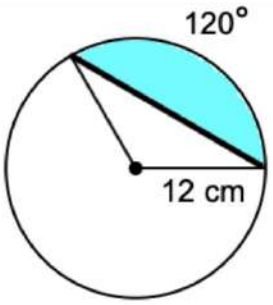
$$A = \frac{n}{360} \cdot \pi r^2$$

$$\frac{80}{360} \cdot \pi (9)^2$$

$$\frac{2}{9} \cdot 81\pi$$

$$18\pi \text{ yd}^2$$

Find the area of the shaded segment of the circle.



Area of Sector − Δ of Triangle

$$\frac{n}{360} \cdot \pi r^2 - \frac{1}{2} r^2 \sin\theta$$

$$\frac{120}{360} \cdot \pi (12)^2 - \frac{1}{2}(12)^2 \sin(120^\circ)$$

$$\frac{1}{3} \cdot 144\pi - \frac{1}{2}(144)\left(\frac{\sqrt{3}}{2}\right)$$

$$48\pi - 36\sqrt{3}$$

$$88.44 \text{ cm}^2$$

The segment $\overline{CD}$ is tangent to $\odot T$. Find $m\angle TDC$.

$8x+10+4x+8+50=180$

$12x+108=180$

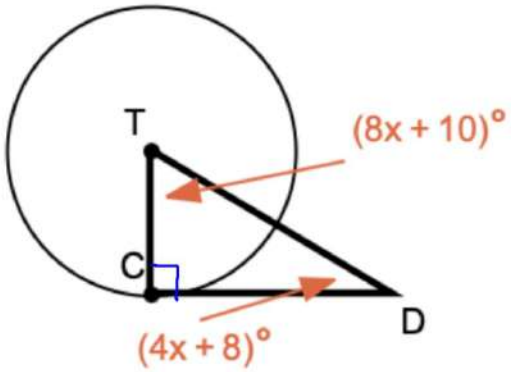
$12x=72$

$x=6$

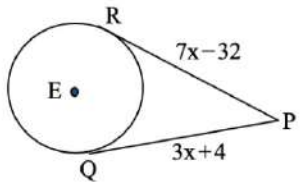
$m\angle TDC = 4x+8$

$= 4(6)+8)$

$= 32^\circ$



If $\overline{PQ}$ and $\overline{PR}$ are tangent to $\odot E$ in the given figure, find the value of x.



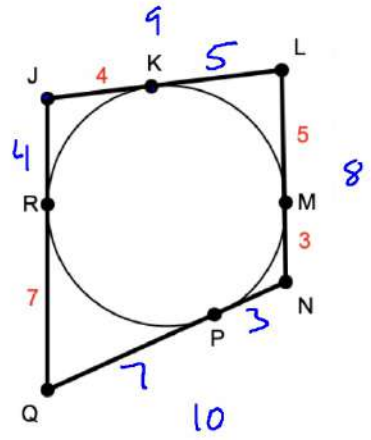
$$7x - 32 = 3x + 4$$

$$4x - 32 = 4$$

$$4x = 36$$

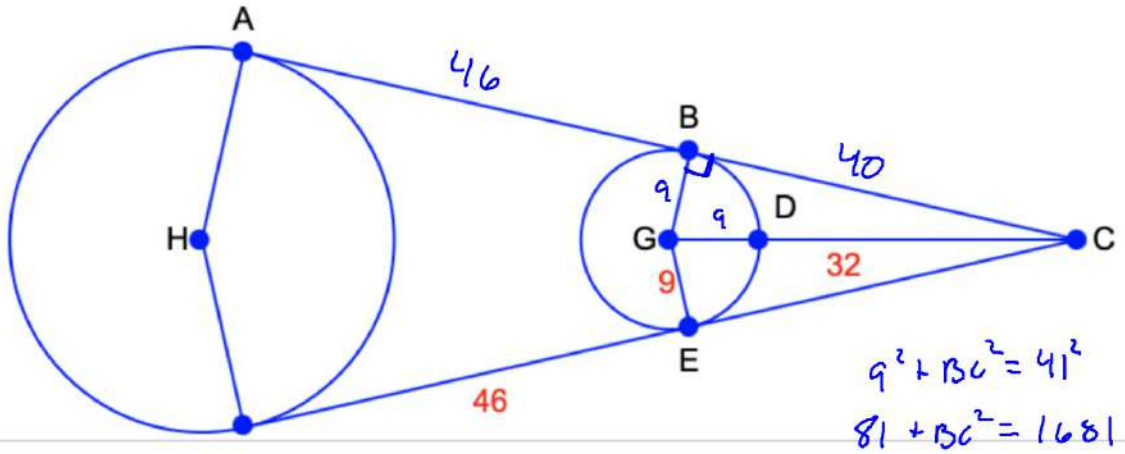
$$x = 9$$

The segments are tangents to the circle. Find the perimeter of JLNQ.



Perimeter = 38

Segments that appear to be tangent are tangent to both circles, and CD = 32. Find AC. = 86



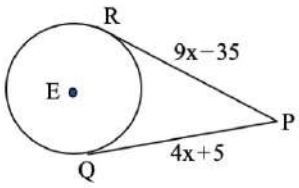
$9^2 + BC^2 = 41^2$

$81 + BC^2 = 1681$

$BC^2 = 1600$

$BC = 40$

If $\overline{PQ}$ and $\overline{PR}$ are tangent to $\odot E$ in the given figure, find the value of x.



$9x - 35 = 4x + 5$

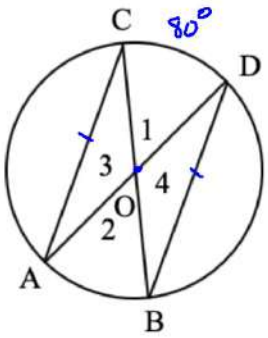
$5x - 35 = 5$

$5x = 40$

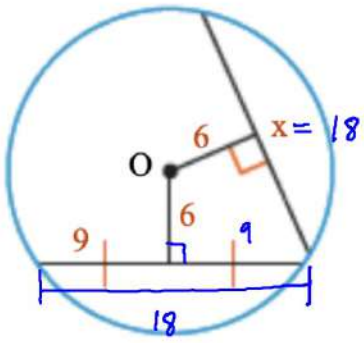
$x = 8$

In $\odot$ O, $m\overset{\frown}{CD} = 80°$ and $\overline{CA} \cong \overline{BD}$. Also, the center of the circle, point O, is the intersection of $\overline{CB}$ and $\overline{AD}$.

What is $m\angle 1$? $= 80°$



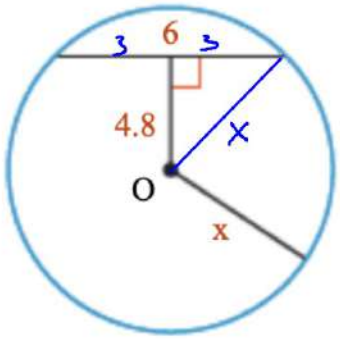
Find the value of x.



Find the value of x.

$4.8^2 + 3^2 = x^2$

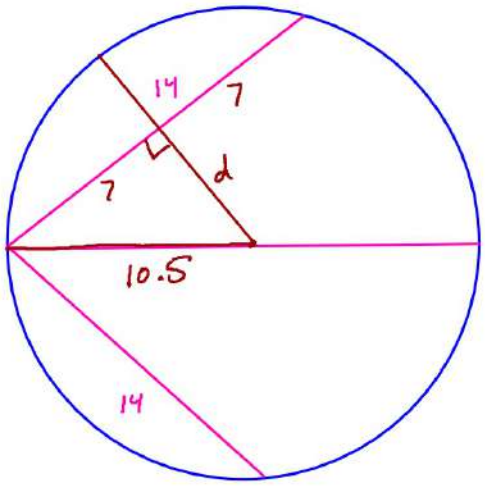
$X = 5.66$



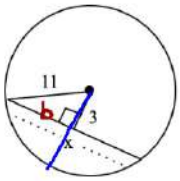
The diameter of a circle is 21 inches. The circle has two chords of length 14 inches. What is the distance from each chord to the center of the circle?

$7^2 + d^2 = 10.5^2$

$d = 7.83$



Use the figure shown to the right to find the value of x.



$b^2 + 3^2 = 11^2$

$b^2 + 9 = 121$

$X = 21.17$