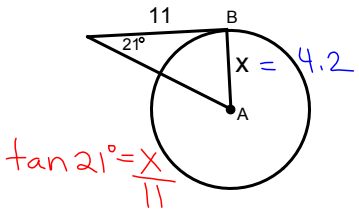
Bellwork

1.

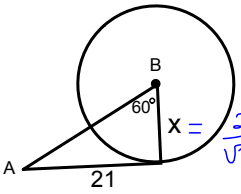


4.2

$\tan 21° = \frac{x}{11}$

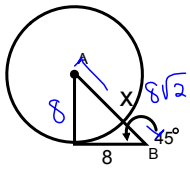
$11 \tan 21° = x$

2.

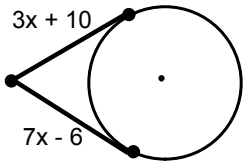


$\frac{21}{\sqrt{3}} \frac{\sqrt{3}}{\sqrt{3}} = \frac{21\sqrt{3}}{3} = 7\sqrt{3}$

3.



4.

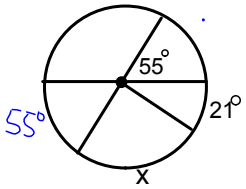


$3x + 10 = 7x - 6$

$16 = 4x$

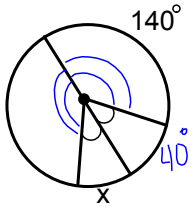
$x = 4$

5.



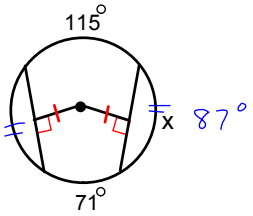
104°

6.



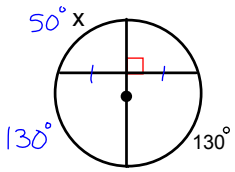
40°

7.

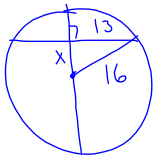


87°

8.



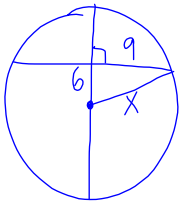
9. If the diameter of a circle is 32 mm long and a chord is 26 mm long, how far from the center is the chord?



$x^2 + 13^2 = 16^2$

$x = \sqrt{87}$

10. If a chord is 18 ft. long and is 6 ft. from the center, what is the radius of the circle?

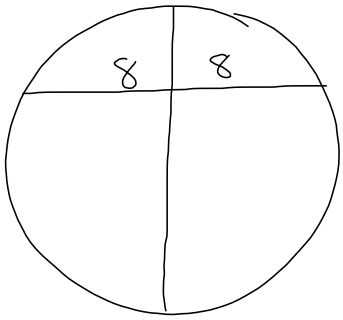


$6^2 + 9^2 = x^2$

$x = \sqrt{117}$

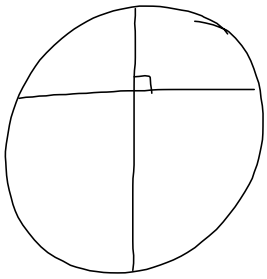
$x = 3\sqrt{13}$

11)



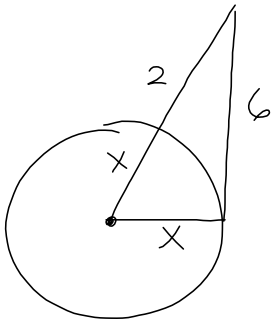
NO

12)



NO

34)



$x^2+6^2=(x+2)^2$

$x^2+6^2=(x+2)(x+2)$

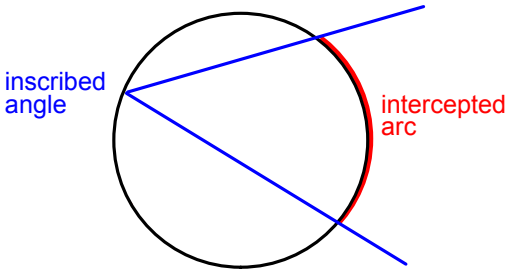
$x^2+6^2=x^2+4x+4$

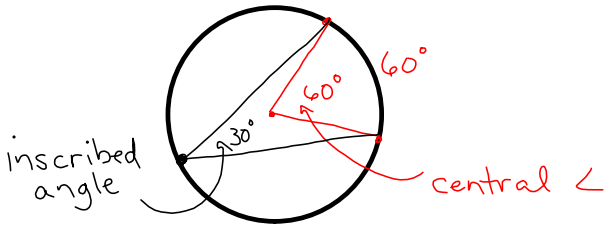
$36=4x+4$

$32=4x$

$x=8$

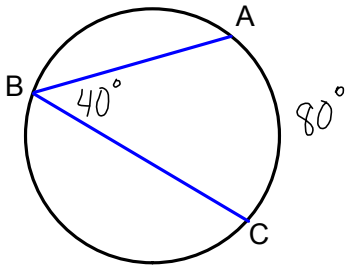
An **inscribed angle** is an angle whose vertex is on a circle and whose sides contain chords of the circle. The arc that lies in the interior of an inscribed angle and has endpoints on the angle is called the **intercepted arc** of the angle.



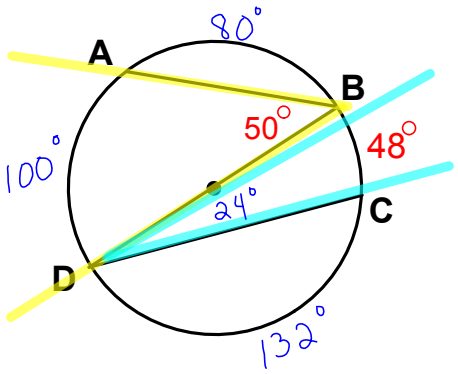


The measure of an inscribed angle is one half the measure of its intercepted arc.

$$m\angle ABC = \frac{1}{2}m\overset{\frown}{AC}$$

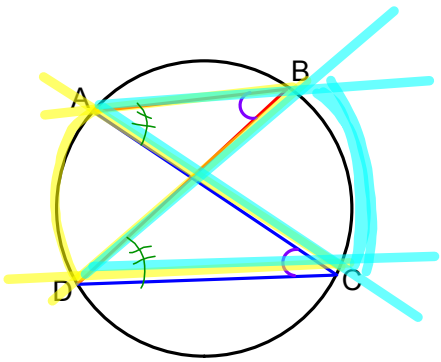


Find all the measure of all the arcs and angles.



* **If two inscribed angles of a circle intercept the same arc, then the angles are conguent.**

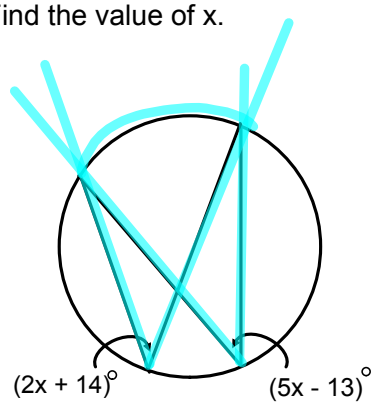
$m\angle ABD$ $m\angle ACD$



Can you name two other congruent angles?

$\angle BAC \cong \angle BDC$

Find the value of x.

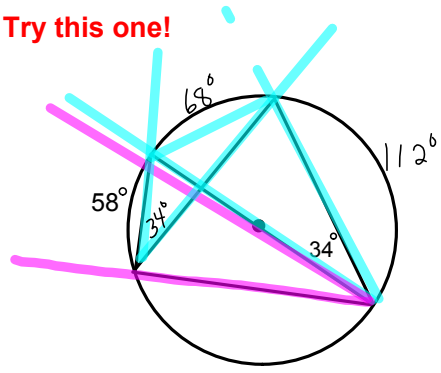


$2x+14=5x-13$

$27=3x$

$x=9$

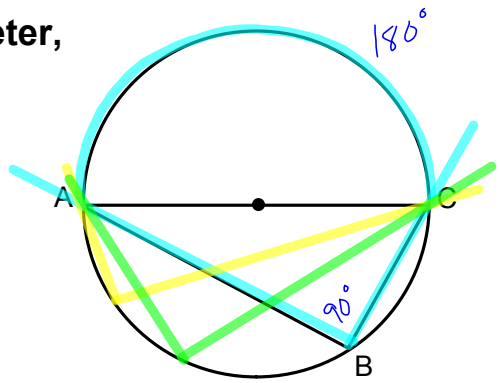
Try this one!



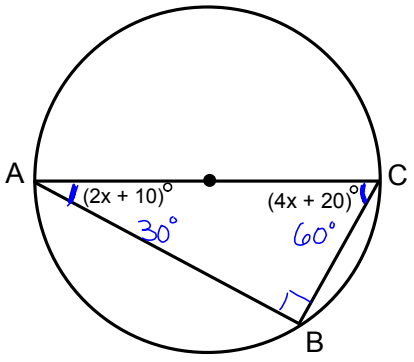
$122°$

* **If an inscribed angle intercepts a diameter, then the angle is a right angle.**

If $\overline{AC}$ is a diameter then $\angle ABC$ is a right angle.



Find the value of x.



$2x + 10 + 4x + 20 + 90 = 180$

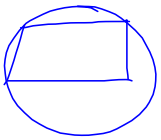
$-90 \quad -90$

$6x + 30 = 90$

$6x = 60$

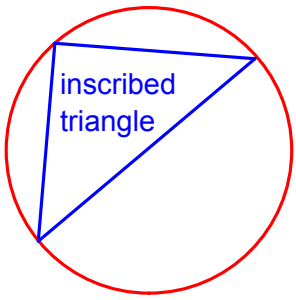
$x = 10$

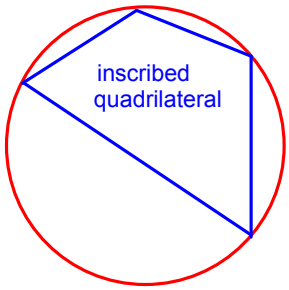
A polygon is an **inscribed polygon** if all of its vertices lie on a circle. The circle that contains the vertices is a **circumscribed circle**.



Not inscribed

circumscribed circles





Find all the angles and arcs.

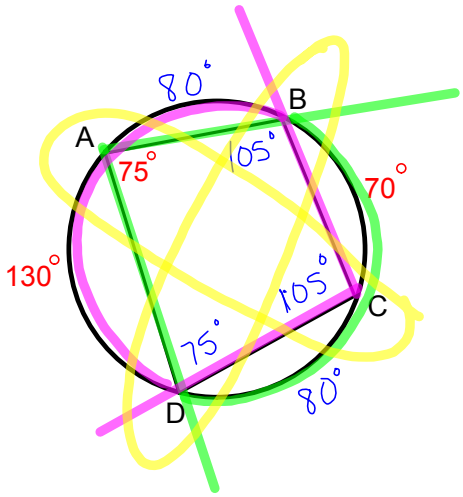
$\angle B =$

$\angle C =$

$\angle D =$

$\overset{\frown}{AB} =$

$\overset{\frown}{CD} =$

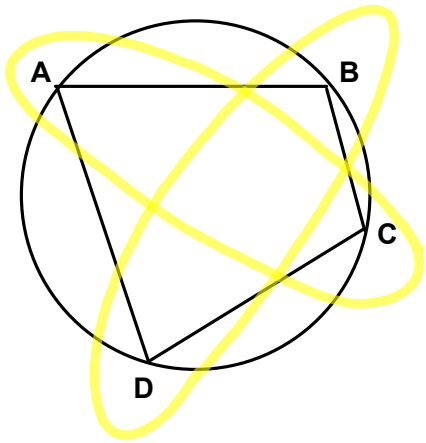


Do you notice anything about the opposite angles of the quadrilateral?

* **The opposite angles of an inscribed quadrilateral are supplementary.**

$m\angle A + m\angle C = 180^\circ$

$m\angle B + m\angle D = 180^\circ$



Find all the missing angles and arcs.