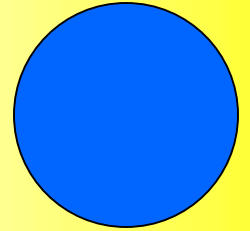
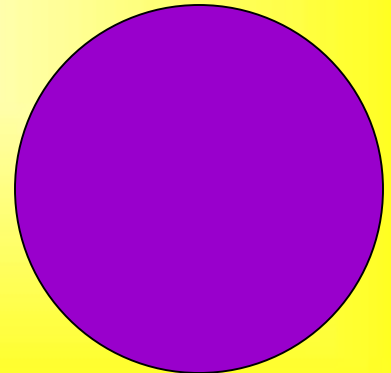
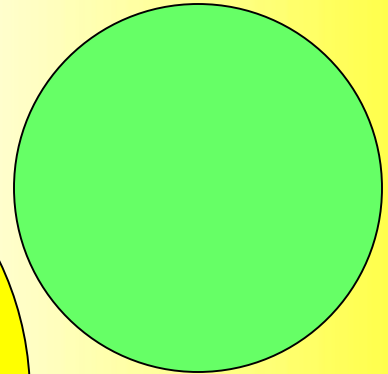
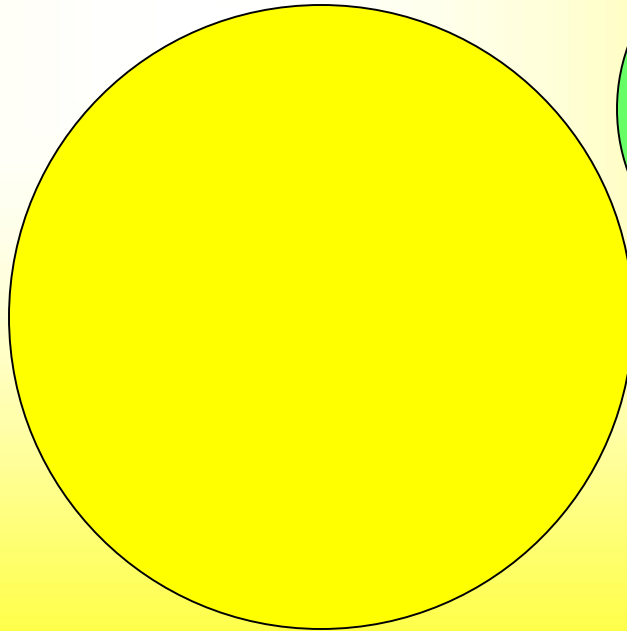
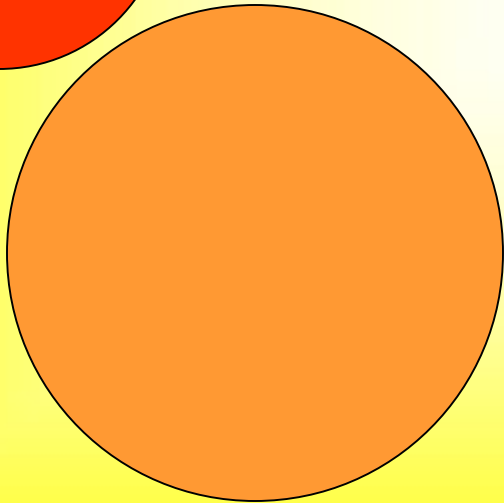
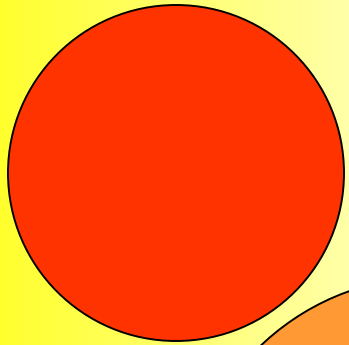
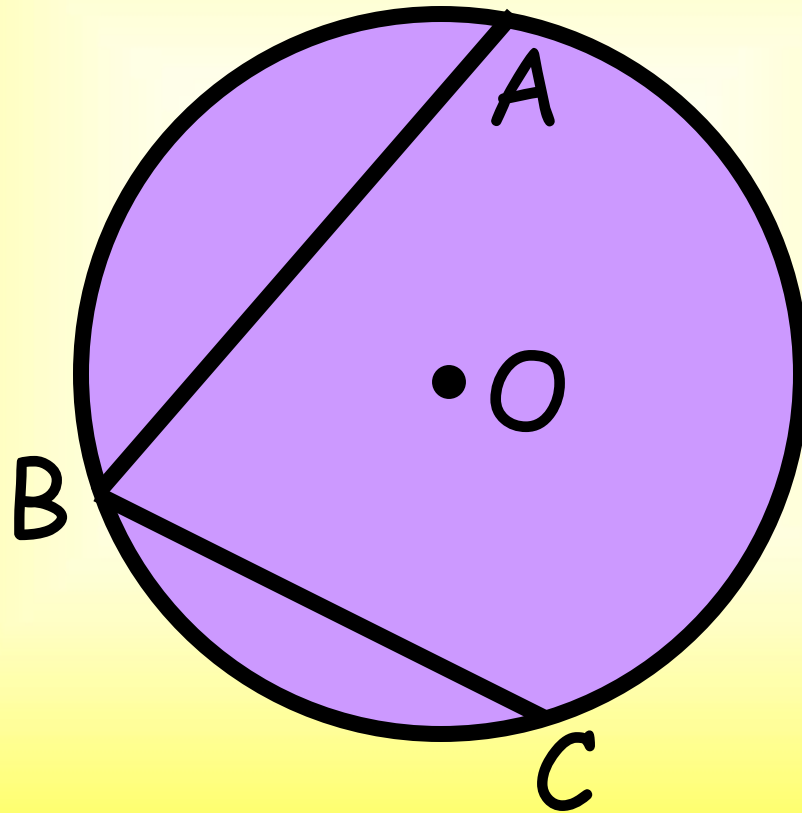


9-5 Inscribed Angles



Inscribed Angle: an angle whose vertex is on a circle and whose sides contain chords of the circle.

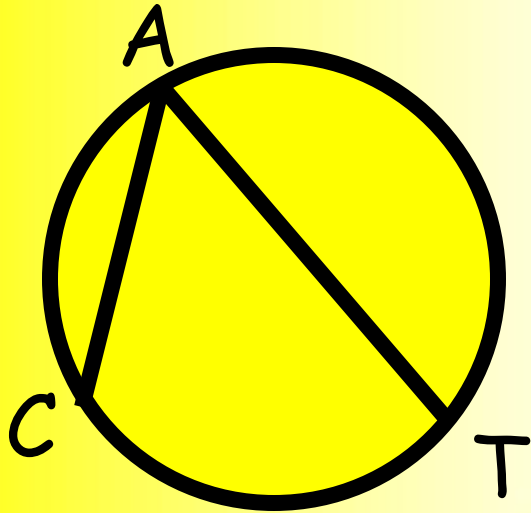


\widehat{AC} is the intercepted arc

$\angle ABC$ is an inscribed angle of circle O.

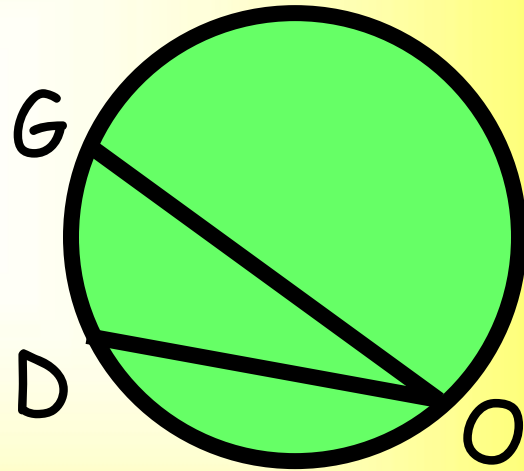
Theorem 9-7: The measure of an inscribed angle is equal to half the measure of its intercepted arc.

Ex1.



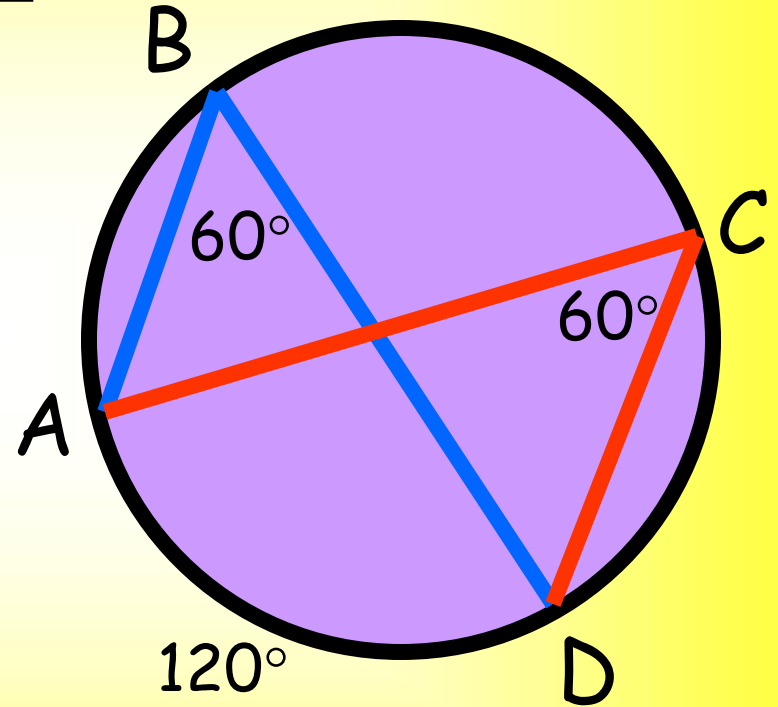
If $m\angle CAT = 70^\circ$,
then $m\widehat{CT} = \underline{140^\circ}$.

Ex2.



If $m\widehat{DG} = 62^\circ$,
then $m\angle DOG = \underline{31^\circ}$.

Corollary 1: If two inscribed angles intercept the same arc, then the angles are congruent.



If $m\angle ABD = 60^\circ$, then $m\widehat{AD} = 120^\circ$ and
 $m\angle ACD = 60^\circ$

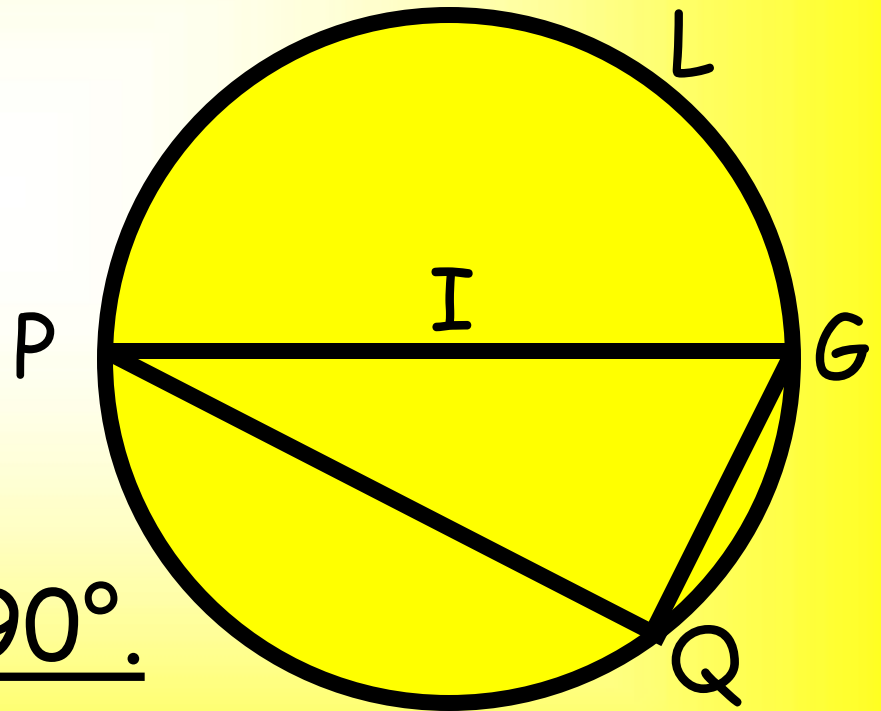
Corollary 2: An angle inscribed in a semicircle is a right angle.

Given: \overline{PG} is a diameter of circle I.

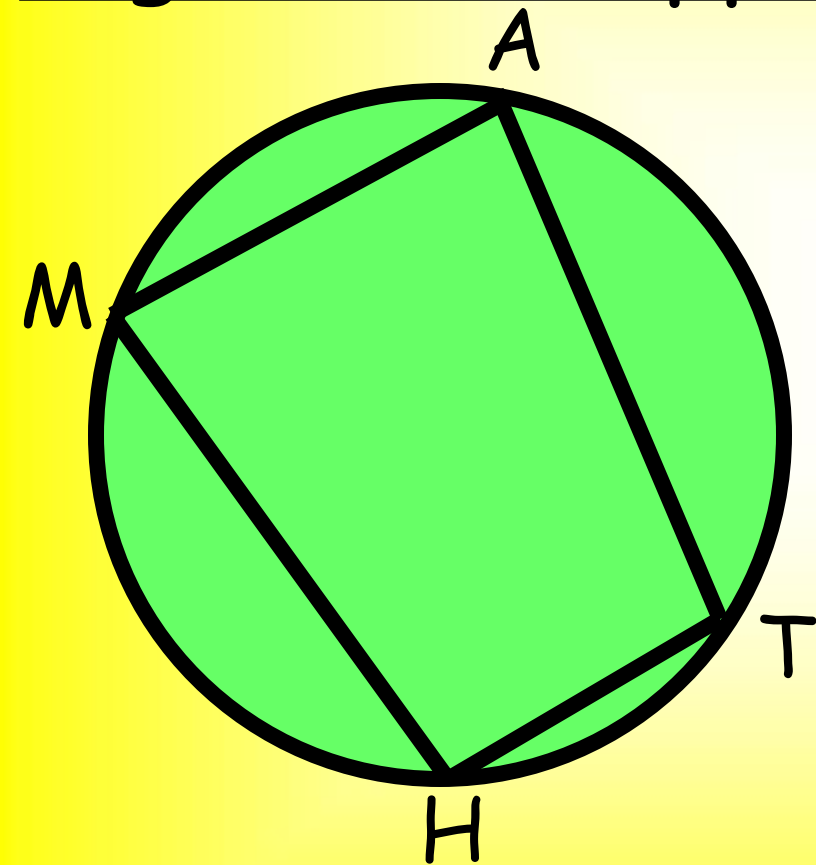
$$m\angle PIG = \underline{180^\circ}$$

$$m\widehat{PLG} = \underline{180^\circ}$$

therefore, $m\angle PQG = \underline{90^\circ}$.



Corollary 3: If a quadrilateral is inscribed in a circle, then its opposite angles are supplementary.



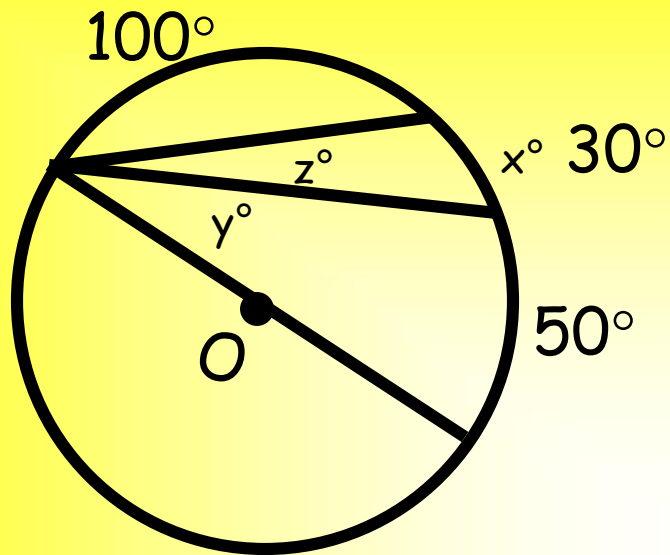
Examples:

If $m\angle MAT = 80$,
then $m\angle MHT = 100$

If $m\angle AMH = 85$,
then $m\angle ATH = 95$

Check for Understanding

1.

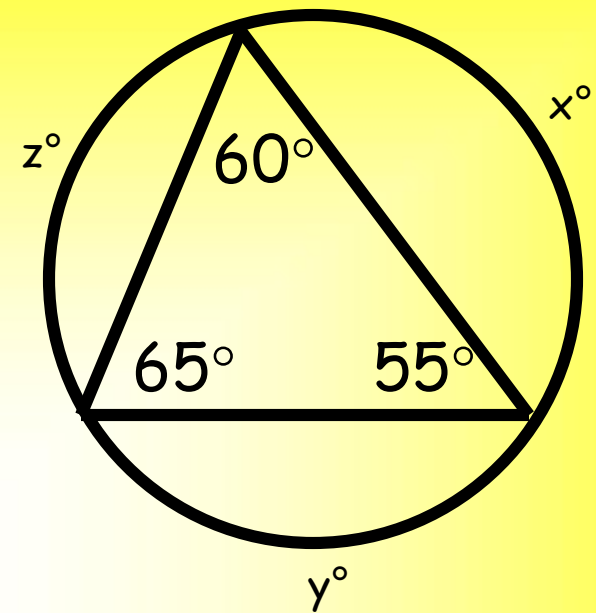


$$x = 30^\circ$$

$$y = 25^\circ$$

$$z = 15^\circ$$

2.



$$x = 130^\circ$$

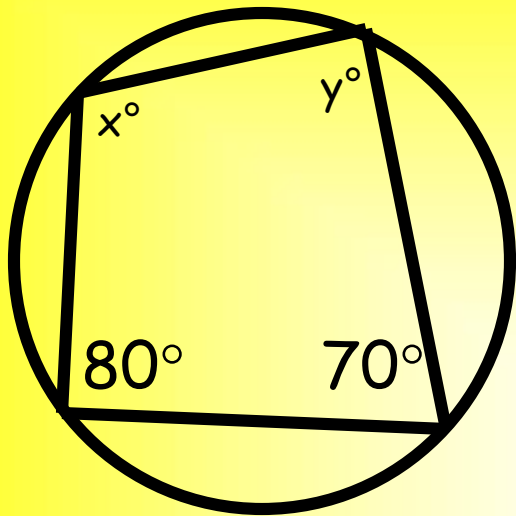
$$y = 120^\circ$$

$$z = 110^\circ$$

O is the center of the circle. Find the values for x , y , and z .

Check for Understanding

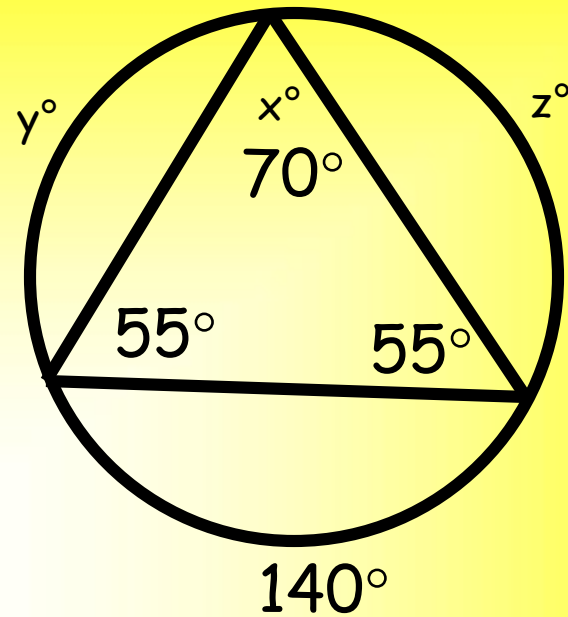
3.



$$x = 110^\circ$$

$$y = 100^\circ$$

4.



$$x = 70^\circ$$

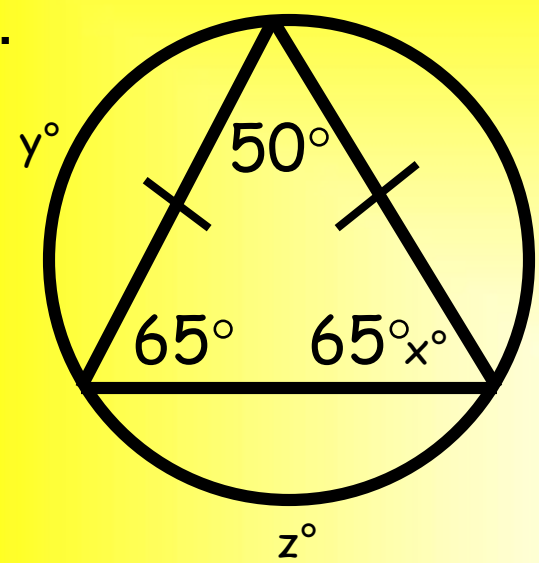
$$y = 110^\circ$$

$$z = 110^\circ$$

O is the center of the circle. Find the values for x , y , and z .

Check for Understanding

5.

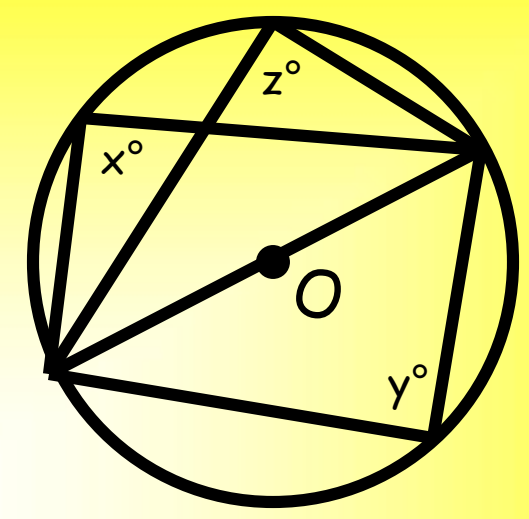


$$x = 65^\circ$$

$$y = 130^\circ$$

$$z = 100^\circ$$

6.



$$x = 90^\circ$$

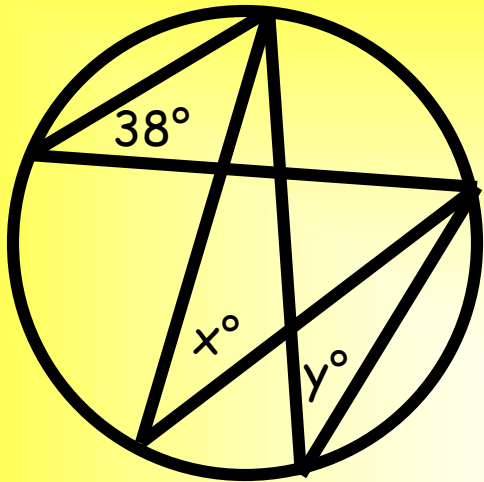
$$y = 90^\circ$$

$$z = 90^\circ$$

O is the center of the circle. Find the values for x, y, and z.

Check for Understanding

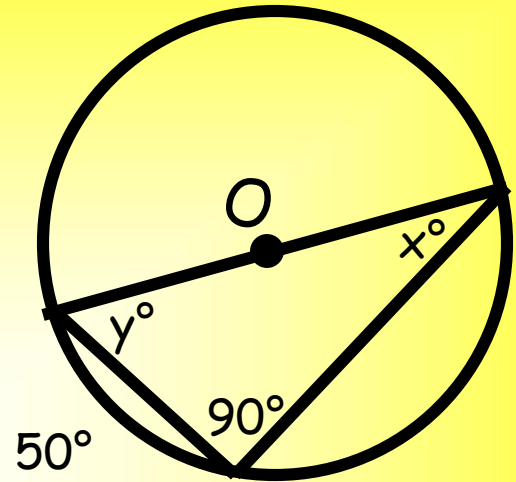
7.



$$x = 38^\circ$$

$$y = 38^\circ$$

8.

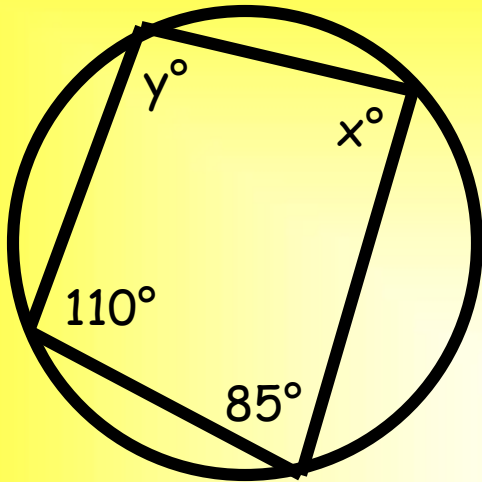


$$x = 25^\circ$$

$$y = 65^\circ$$

Check for Understanding

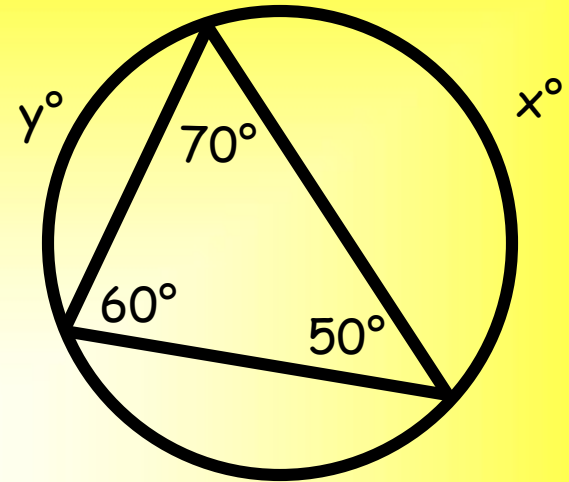
9.



$$x = 70^\circ$$

$$y = 95^\circ$$

10.

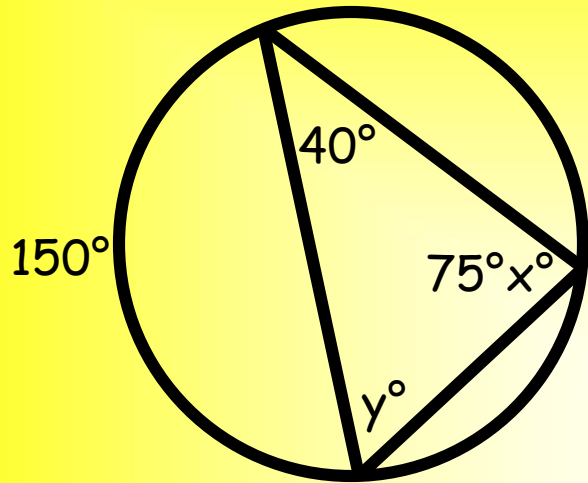


$$x = 120^\circ$$

$$y = 100^\circ$$

Check for Understanding

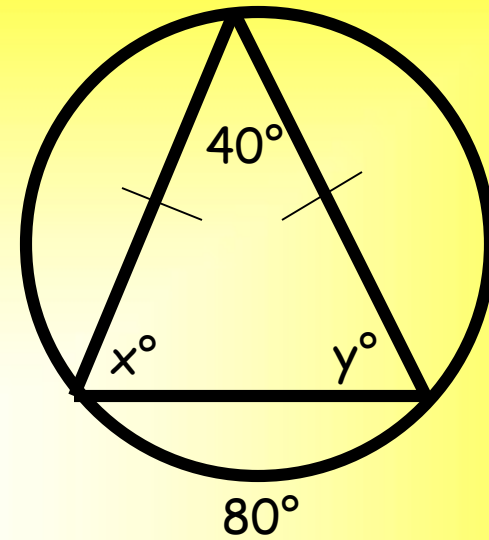
11.



$$x = 75^\circ$$

$$y = 65^\circ$$

12.



$$x = 70^\circ$$

$$y = 70^\circ$$