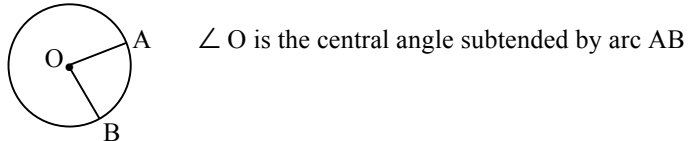


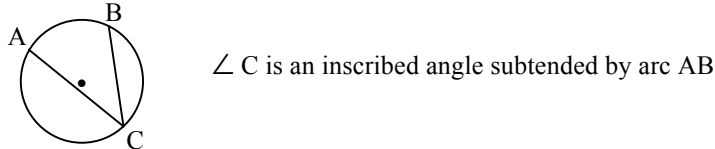
Angles in Circles Properties Worksheet

Background Information – You will need to use this information to complete the worksheet that follows.

Central angle – an angle formed by radii of a circle.



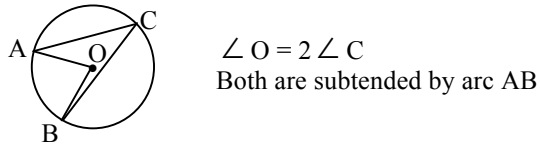
Inscribed angle – an angle formed by connecting two points on the circumference of a circle to another point on the circumference.



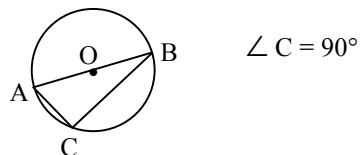
Angle Properties:

1. Angles in a Circle Theorem

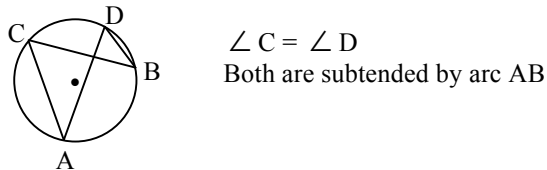
The measure of the central angle is twice the measure of an inscribed angle subtended by the same arc.



2. The angle inscribed in a semicircle is a right angle.

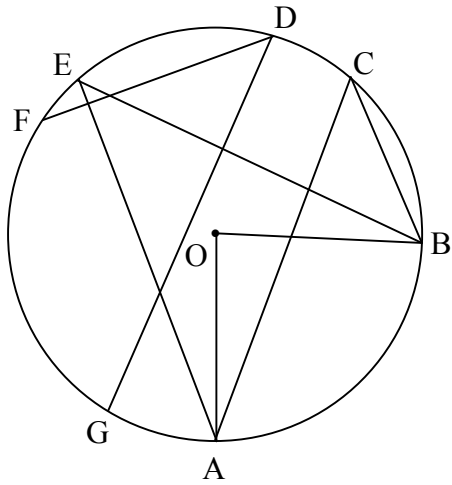


3. Inscribed angles subtended by the same arc are equal.



Central & Inscribed Angles Subtended by Arcs

Use this drawing to answer the questions below.



For questions 1 – 3, fill in the blank with “central” or “inscribed”.

1. $\angle FDG$ is a(n) _____ angle.
2. $\angle AEB$ is a(n) _____ angle.
3. $\angle AOB$ is a(n) _____ angle.

For questions 4 – 6, indicate which angle each arc is made by.

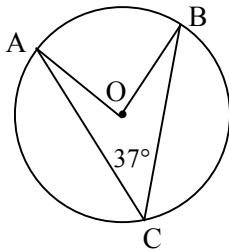
4. $\angle AOB$ is made by arc _____.
5. $\angle FDG$ is made by arc _____.
6. $\angle ACB$ is made by arc _____.

For questions 7 – 9, fill in the missing angles.

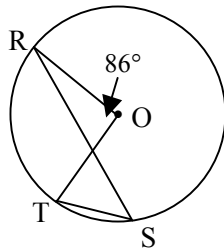
7. The only central angle made by arc AB is _____
8. The two inscribed angles are made by the arc AB are _____ and _____
9. The angle made by arc FG is _____. It is a(n) _____ (central / inscribed) angle.

Finding Missing Angles using Angles in a Circle Theorem

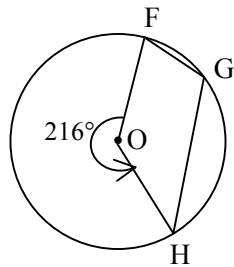
Use the diagrams to complete the sentence(s) following each one.



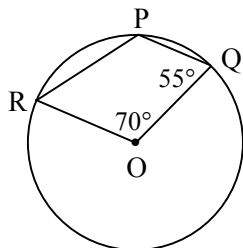
1. $\angle ACB$ is an inscribed angle made by arc _____. The central angle made by the same arc is _____. Therefore, the measurement of $\angle AOB$ is _____°.



2. $\angle ROT$ is a central angle made by arc _____. An inscribed angle made by the same arc is _____. Therefore, the measure of $\angle RST$ is _____°.



3. Reflex $\angle FOH$ is the central angle made by major arc _____. An inscribed angle made by the same arc is _____. Therefore, the measure of $\angle FGH$ is _____°.

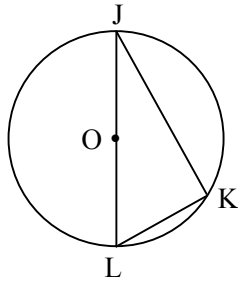


4. $\angle RPQ$ is the inscribed angle made by major arc _____. \angle _____ is also made by this same arc, and its measure is _____°. Therefore, the measure of $\angle RPQ$ is _____°.

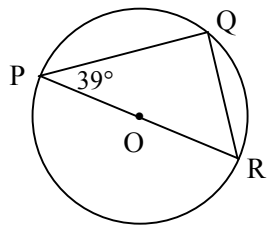
5. Since the sum of angles in a quadrilateral is _____ $^{\circ}$, the measure of $\angle PRO$ is _____ $^{\circ}$.

Finding Missing Angles using Angles Inscribed in a Semicircle

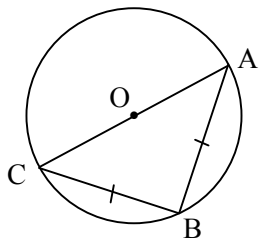
Use the diagrams to complete the sentence(s) following each one.



1. The angle inscribed in a semicircle in the above diagram is _____. Therefore the measure of this angle is _____ $^{\circ}$.



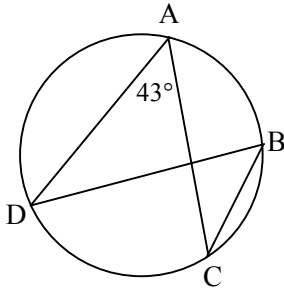
2. Since it is inscribed in a semicircle, the measure of $\angle PQR$ is _____ $^{\circ}$.
 3. Since the sum of angles in a triangle is _____ $^{\circ}$, the measure of $\angle PRQ$ is _____ $^{\circ}$.



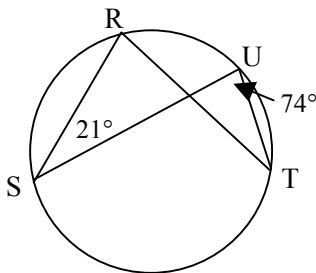
4. The angle inscribed in a semicircle is _____. Its measure is _____ $^{\circ}$.
 5. $\triangle ABC$ is an isosceles triangle. This means that \angle _____ and \angle _____ are equal. Because the sum of angles in a triangle is 180° , this means that both of these angles measure _____ $^{\circ}$.

Finding Missing Angles using Inscribed Angles Subtended by the Same Arc

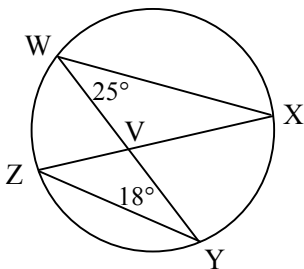
Use the diagrams to complete the sentence(s) following each one.



1. $\angle DAC$ is subtended by arc _____. Another inscribed angle subtended by the same arc is _____. Therefore the measure of $\angle DBC$ is _____ $^\circ$.



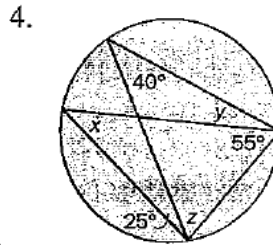
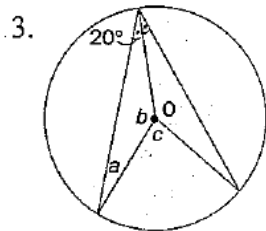
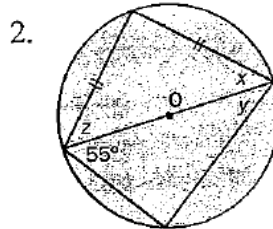
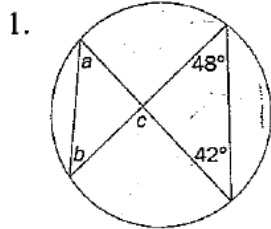
2. $\angle RSU$ is subtended by arc _____. Another inscribed angle subtended by the same arc is _____. Therefore the measure of $\angle RTU$ is _____ $^\circ$.
3. Another inscribed angle subtended by the same arc as $\angle SUT$ is _____. Therefore the measure of this angle is _____ $^\circ$.



4. By the inscribed angle property, the measure of $\angle WXZ$ is _____ $^\circ$, and the measure of $\angle XZY$ is _____ $^\circ$.
5. Since the sum of angles in a triangle is 180° , the measure of $\angle WVX$ is _____ $^\circ$.

Putting it All Together

In each of the following circles, use the angle properties to find the missing angles.



In each of the following circles, use the angle properties to find the missing angles. Justify your statements with reasons.

