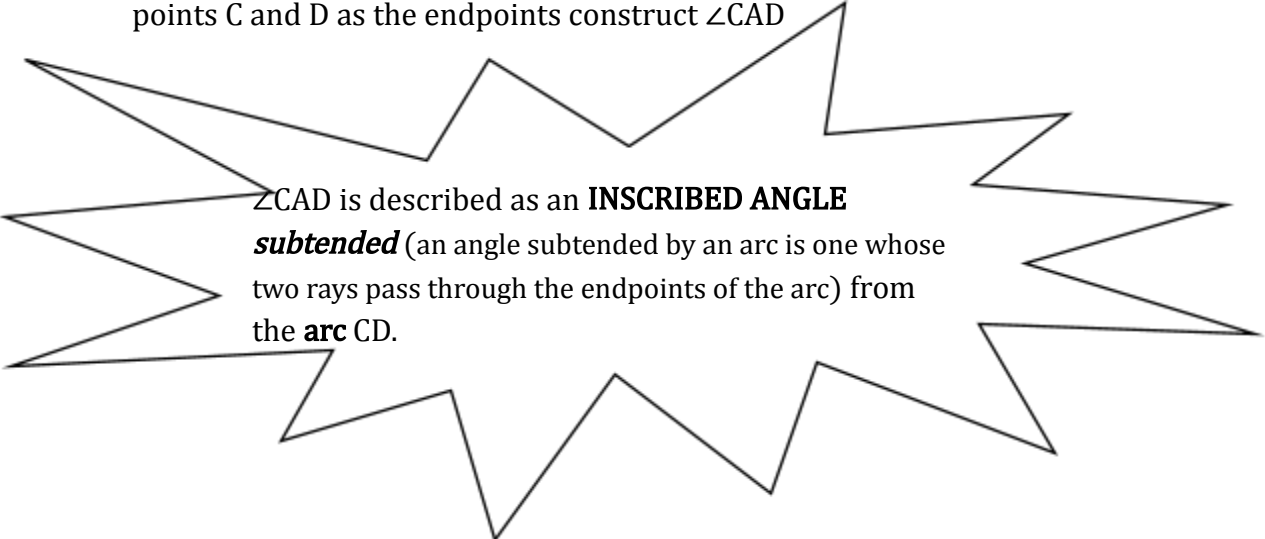


Exploring Circles

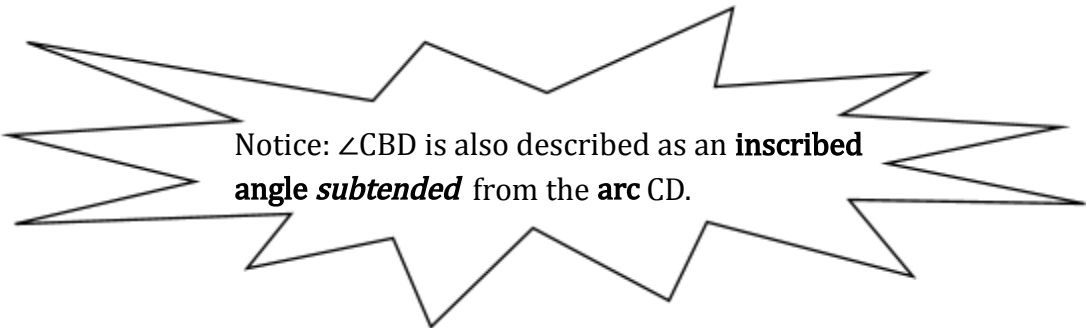
Activity 1: Inscribed Angles Subtended from the Same Arc

1. Label the center of a circle O.
2. Locate 4 points on the **circumference** of the circle, label them A, B, C and D
3. Using point A as the **vertex** (*The common endpoint of two or line segments*) and points C and D as the endpoints construct $\angle CAD$



$\angle CAD$ is described as an **INSCRIBED ANGLE** *subtended* (an angle subtended by an arc is one whose two rays pass through the endpoints of the arc) from the **arc CD**.

4. Using point B as the vertex and points C and D as endpoints construct $\angle CBD$



Notice: $\angle CBD$ is also described as an **inscribed angle subtended** from the **arc CD**.

5. Use a protractor to measure $\angle CAD$ and $\angle CBD$

What do you notice about the measure of the two inscribed angles?

Exploring Circles

Activity 2: Central and Inscribed Angles

1. Label the center of a circle O.
2. Locate three points on the circumference of the circle. Label these points A, B, and C.
3. Using point O as the vertex and points B and C as the endpoints construct the **central angle** $\angle COB$. (*Central Angle - is an angle whose vertex is the center of a circle, and whose sides pass through a pair of points on the circle*)
4. Using Point A as the vertex and points B and C as endpoints construct the $\angle CAB$.
5. Use a protractor to measure $\angle COB$ and $\angle CAB$.

What do you notice about the measure of the central and inscribed angles?

Write a statement about how the relationship between measures of the central and inscribed angle subtended from the same arc.

Exploring Circles

Activity 3: Angles Inscribed in a Semi Circle

1. Label the center of a circle O.
2. Draw the diameter of the circle. Label the endpoints A and B.
3. Identify another point on the circle and label it C.
4. Using point C as the vertex and points B and A as the endpoints construct the $\angle ACB$, inscribed in the semicircle from arc AB.
5. Use a protractor to measure $\angle ACB$.

What do you notice about the measure of the angle inscribed in a semi circle?

Exploring Circles

Activity 4: Relationship between the Radius and Tangent Lines

1. Label the center of a circle O.
2. Draw a **tangent** (a line that is touching and not intersecting a curve or curved surface at one and only one point) to the circle and label the **point of tangency** A.
3. Label the endpoints of the tangent line C and D.
4. Use a protractor to measure $\angle CAO$ and $\angle DAO$.

What do you notice about the measure of the two angles formed by the radius and the line tangent to the circle?

What do you notice about the measure of the angles formed by the radius and the tangent line to the point of tangency?

Exploring Circles

Activity 5: Relationship between chords and Circles.

1. Label the center of a circle O.
2. Draw two different chords.
3. Draw the **perpendicular bisector** (*A line which cuts a line segment into two equal parts at 90°*) of each chord.

What do you notice about where the two Perpendicular bisectors meet?