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Analytic Geometry for College Graduates
Unit 3: Circles \& Volume | Topic: Circles: Inscribed Angles \& Inscribed Quadrilaterals (G.C.1, G.C.2)

## Inscribed Angles and Intercepted Arcs

An $\qquad$ is made by $\qquad$ that SHARE an endpoint on the $\qquad$ of a circle.

Where they meet is called a $\qquad$ .

The arc that is between the other endpoints of the chord is called the
Sample: In the diagram at the right, chords $\overline{A B}$ and $\overline{B C}$ meet at vertex $\qquad$ to form $\qquad$ $\angle A B C$ and $\widehat{A C}$.

1. Circle each diagram that shows circles with chords. If the circle does not contain a chord, indicate what is shown.

2. Circle the vertex of each angle.

3. Trace the intercepted arc in each diagram.


Measures of Inscribed Angles and Intercepted Arcs
The measure of an inscribed angle is $\qquad$ the measure of its intercepted arcs.
$m \angle B=\frac{1}{2} m \widehat{A C}$
Sample: In the diagram at the right, $m \angle B=\frac{1}{2}(\quad)=$
Find the value of $x$.
4.

5.

6.


UNIT 3 • CIRCLES AND VOLUME

## Lesson 1: Introducing Circles

Use your knowledge of angles to complete the problems that follow.
5. Find the values of $x$ and $y$.

6. Find the value of $x$ and the measure of $\overparen{A B}$.

7. Find the values of $x, y$, and $z$.


UNIT 3 • CIRCLES AND VOLUME
Lesson 1: Introducing Circles
8. Find $m \angle C$ and $m \angle D$.

9. Find $m \angle B$ and $m \angle C$.

10. Find $m \overparen{B C}$ and $m \overparen{C A}$.

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## Reteaching (continued)

Inscribed Angles

## Exercises

In Exercises 1-9, find the value of each variable.
1.

2.

3.

4.

5.

6.

7.

8.

9.


Find the value of each variable. Lines that appear to be tangent are tangent.
10.

11.

12.


Points $A, B$, and $D$ lie on $\odot C . m \angle A C B=40 . m \widehat{A B}<m \widehat{A D}$. Find each measure.
13. $m \overparen{A B}$
14. $m \angle A D B$
15. $m \angle B A C$
16. A student inscribes a triangle inside a circle. The triangle divides the circle into arcs with the following measures: $46^{\circ}, 102^{\circ}$, and $212^{\circ}$. What are the measures of the angles of the triangle?
17. A student inscribes $N O P Q$ inside $\odot Y$. The measure of $m \angle N=68$ and $m \angle O=94$. Find the measures of the other angles of the quadrilateral.

