Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Exploring Other Angles!**

Directions: Based on the pictures below, fill in the blanks for the following theorems.

45°

C

A

D

A

100°

85°

O

70°

50°

D

A

130°

110°

B

O

B

O

80°

B

125°

D

C

C

**Theorem 9.9**: The measure of an angle formed by two chords that intersect a circle is equal to \_\_\_\_\_\_\_\_\_the sum of the measures of the intercepted arcs. (Hint: What is the relationship between m$∠$AOC and the sum of m$\hat{AC}$ and m$\hat{BD}$?)

A

100°

A

85°

35°

B

70°

D

B

1

C

D

1

C

Angle 1 is equal to 15°

Angle 1 is equal to 25°

The measure of an angle formed by two secants drawn from a point outside a circle is equal to \_\_\_\_\_\_\_\_\_\_ the difference of the measures of the intercepted arcs. (Hint: What is the relationship between m$∠$1 and the difference between m$\hat{AD}$ and m$\hat{BC}$?)

A

A

X

Angle 2 is equal to 45°

2

150°

210°

135°

225°

X

D

Angle 2 is equal to 30°

2

D

The measure of an angle formed by two tangents drawn from a point outside a circle is equal to \_\_\_\_\_\_\_\_\_ the difference of the measures of the intercepted arcs. (Hint: What is the relationship between m$∠$2 and the difference between m$\hat{AXD}$ and m$\hat{AD}$?)

D

A

110°

B

85°

Angle 3 is equal to 25°

3

120°

B

70°

Angle 3 is equal to 12.5°

3

D

A

The measure of an angle formed by a secant and a tangent drawn from a point outside a circle is equal to \_\_\_\_\_\_\_\_ the difference of the measures of the intercepted arcs. (Hint: What is the relationship between m$∠$3 and the difference between m$\hat{AD}$ and m$\hat{BD}$?)

Based on the information above, complete the following theorem:

**Theorem 9.10**: The measure of an angle formed by two secants, two tangents, or a secant and a tangent drawn from a point outside a circle is equal to \_\_\_\_\_\_\_\_\_ the difference of the measures of the intercepted arcs.

CW: pg. 358-359 #1-10 HW: pg. 1-22, 24, 27, 28 (**NOTE**: you **must** draw the figure for #1-10 on your HW paper before you find the measures of each numbered angle.)