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

**Exploring Other Angles!**

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

45

C

A

D

A

85°

O

100°

70

50

D

A

B

O

130

B

O

110

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 angle AOC and the sum of arcs AC and BD?)

A

100

A

B

35

85

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 angle 1 and the difference between arcs AD and BC?)

A

A

X

Angle 2 is equal to 45°

2

135

225

210

150

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 angle 2 and the difference between arcs AXD and AD?)

D

A

B

110

85

Angle 3 is equal to 25°

3

B

120

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 angle 3 and the difference between arcs AD and 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.