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

**Exploring Inscribed Angles!**

Here are some definitions to help you get started:

**Inscribed Angle** – an angle whose vertex is on a circle and whose sides contain chords of the circle

**Intercepted Arc** – the arc that is in the interior of the inscribed angle

Figure 1. Angles 1 and 2 are inscribed angles. The red parts of the circles are called intercepted arcs.



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

C

B

B

45°

30°

50°

100

B

A

90

C

A

A

60

C

Theorem 9.7: The measure of an inscribed angle is equal to \_\_\_\_\_\_\_\_ the measure of its intercepted arc.

2

Angles 1 and 2 are congruent in all 3 figures.

B

B

A

A

2

1

1

A

C

C

2

1

D

D

D

B

C

Name the arc that angles 1

and 2 have in common \_\_\_\_\_\_\_\_\_\_.

Name the arc that angles 1

and 2 have in common \_\_\_\_\_\_\_\_\_\_.

Name the arc that angles 1

and 2 have in common \_\_\_\_\_\_\_\_\_\_.

Corollary 1: If two inscribed angles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the same arc, then the angles are \_\_\_\_\_\_\_\_\_\_\_\_\_.

Arcs ABC are semicircles in all 3 figures.

B

C

B

A

90°

C

B

A

90°

90°

C

A

Corollary 2: An angle inscribed in a semicircle is a \_\_\_\_\_\_\_\_ angle.

95°

105°

110°

130°

G

G

G

H

H

H

90°

70°

80°

85°

75°

F

50°

F

F

E

E

E

90°

100°

Corollary 3: If a quadrilateral is inscribed in a circle, then its opposite angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Hint: What do angles H and F add up to? Angles E and G?)

T

A

Segment PT is tangent to the circle in the following 3 figures.

100

80°

P

A

150

P

160

50°

T

75°

P

T

A

Theorem 9.8: The measure of an angle formed by a \_\_\_\_\_\_\_\_\_\_ and a \_\_\_\_\_\_\_\_\_\_\_\_\_ is equal to \_\_\_\_\_\_\_\_\_\_ the measure of the intercepted arc. (Hint: What is the relationship between angle ATP and minor arc AT?)