Name _____ Date _____

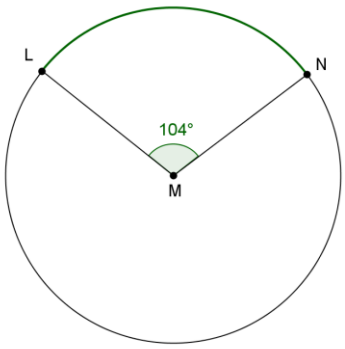
Angle Relationships in Circles

Explore

Directions: In each section below, compare the given information about arc measures or angle measures. Use your observations to answer the question that follows each set of circles or to complete the table, and then answer the debriefing questions.

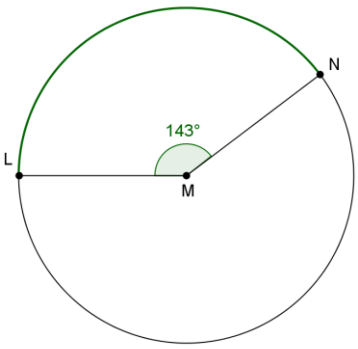
Part 1: Central Angles

$m\overset{\frown}{LN} = 104°$



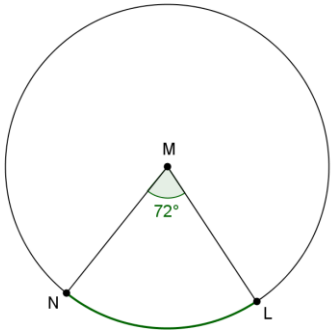
Circle 1

$m\overset{\frown}{LN} = 143°$



Circle 2

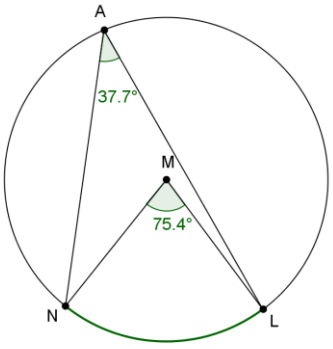
$m\overset{\frown}{LN} = 72°$



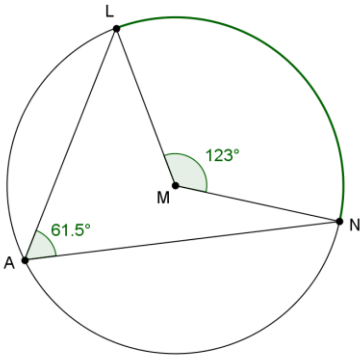
Circle 3

1. In the figures above, $\angle LMN$ is a central angle with intercepted arc $\overset{\frown}{LN}$. What is the relationship between the measure of a central angle and its intercepted arc?

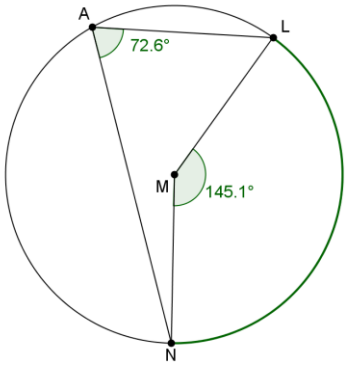
Part 2: Inscribed Angles



Circle 1



Circle 2



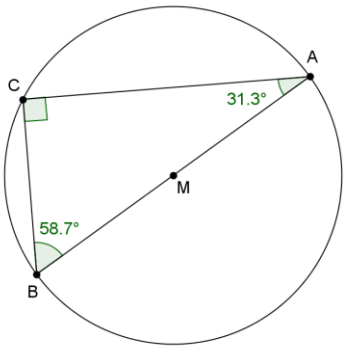
Circle 3

Circle Number	1	2	3
$m\angle LMN$			
$m\angle LAN$			

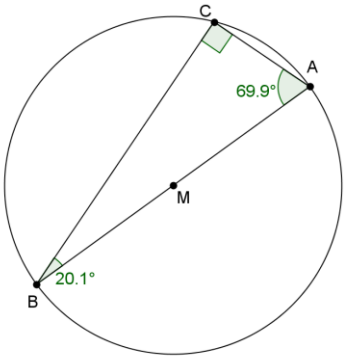
Name _____ Date _____

2. In the figures above, $\angle LMN$ is a central angle of circle M and $\angle LAN$ is an inscribed angle. What is the relationship between the measure of the inscribed angle and its intercepted arc, $\overset{\frown}{LN}$?

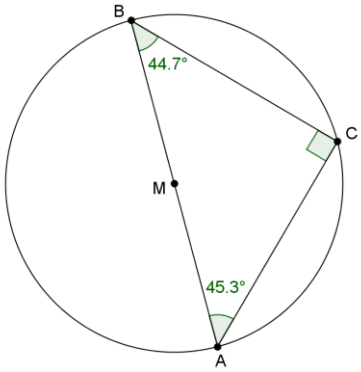
Part 3: Inscribed Angles and Diameters



Circle 1



Circle 2



Circle 3

3. In the circles above, $\overline{AB}$ is a diameter of circle M and $\angle ACB$ is an inscribed angle. What can you conclude about the measure of an inscribed angle that intercepts a semicircle?

Debriefing Questions

1. What is the relationship between the measure of a central angle and the measure of its intercepted arc?

2. What is the relationship between the measure of an inscribed angle and the measure of its intercepted arc?

3. If an inscribed angle intercepts a semicircle, what type of angle will the inscribed angle always be?

