TOPIC 13-2: ARCS, SEMICIRCLES, & CENTRAL ANGLES

Some important concepts…

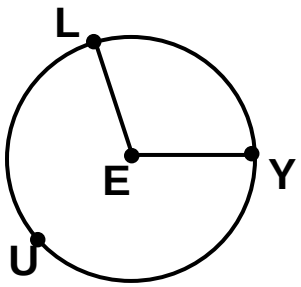
- An ***ARC*** is a _____ of the circumference of a circle.
- A ***CENTRAL ANGLE*** is one that has its vertex at _____ _____ of the circle and the sides are radii of the circle.
- A ***MINOR ARC*** is one with a measure _____ _____ _____. It is named by its _____.
- A ***MAJOR ARC*** is one with a measure _____ _____ _____. It is named by its endpoints and _____ _____ on the arc.

EXAMPLE 1: Name the following.

The central angle: _____

The minor arc: _____

The major arc: _____



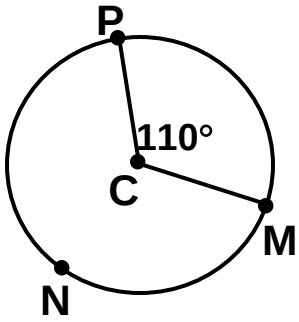
THEOREM: SUM OF CENTRAL ANGLES

The sum of the measures of the central angles of a circle with no interior points in common is _____.

Arcs are measured by their corresponding central angles.

Central Angle = Arc

EXAMPLE 2:



- m∠PCM = _____
- m $\overset{\frown}{PM}$ = _____
- m $\overset{\frown}{PNM}$ = _____
- What kind of arc is $\overset{\frown}{PM}$? How do you know?

  _____

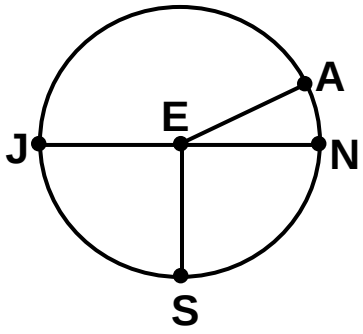
A ***SEMICIRCLE*** is an arc with a measure of _____. It is named by its endpoints and another point on the arc.

EXAMPLE 3: In circle E, m∠AEN = 18°, $\overline{JN}$ is a diameter, and m∠JES = 90°. Find each measure.

a) m $\overset{\frown}{AN}$ = _____

b) m $\overset{\frown}{JA}$ = _____

c) m $\overset{\frown}{JAS}$ = _____



EXAMPLE 4: $\overrightarrow{FD}$ is a tangent to circle O. Based on the angle measures given, find the measure of each of the following:

a) m∠DOF = _____

b) m∠EOA = _____

c) $\overset{\frown}{AB}$ = _____

d) $\overset{\frown}{AD}$ = _____

e) $\overset{\frown}{AC}$ = _____

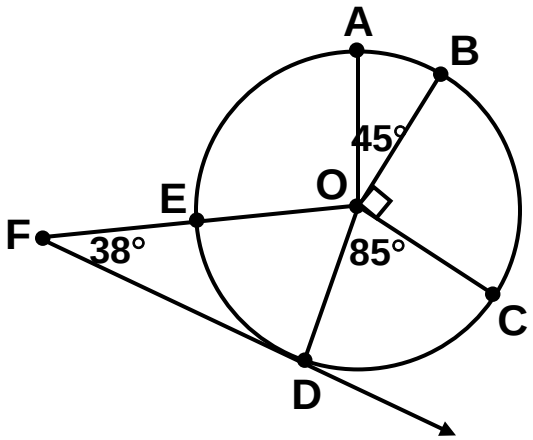
f) $\overset{\frown}{BC}$ = _____

g) $\overset{\frown}{ADC}$ = _____

h) $\overset{\frown}{ACD}$ = _____

i) $\overset{\frown}{ED}$ = _____

j) $\overset{\frown}{AE}$ = _____



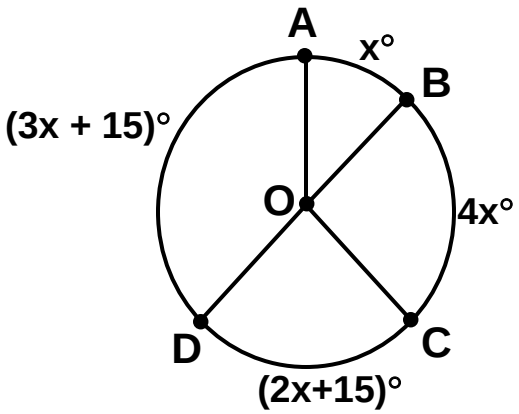
EXAMPLE 5: Find the measure of each of the following:

a) ∠AOB = _____

b) ∠BOC = _____

c) ∠COD = _____

d) ∠AOD = _____



EXAMPLE 6: Find the measure of each arc in circle C and Classify it. In the figure $\overline{PZ}$ is a diameter.

a) $\overset{\frown}{PN}$ = _____; _____

b) $\overset{\frown}{ZQP}$ = _____; _____

c) $\overset{\frown}{RZ}$ = _____; _____

d) $\overset{\frown}{ZMP}$ = _____; _____

e) $\overset{\frown}{RM}$ = _____; _____

f) $\overset{\frown}{NQP}$ = _____; _____

g) $\overset{\frown}{QN}$ = _____; _____

h) $\overset{\frown}{RP}$ = _____; _____