Analytic Geometry Milestone Review Questions Unit 3   Name: _____
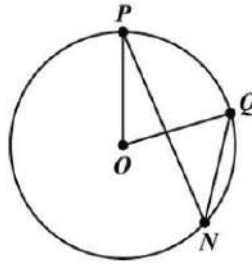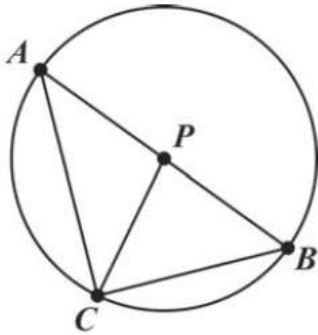
1. $\angle PNQ$ is inscribed in circle O and $mPQ = 70°$.

  a. What is the measure of $\angle POQ$?

  b. What is the relationship between $\angle POQ$ and $\angle PNQ$?
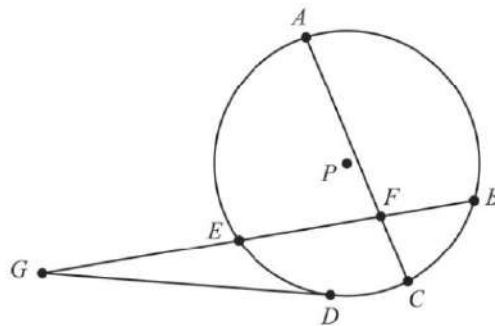
  c. What is the measure of $\angle PNQ$?
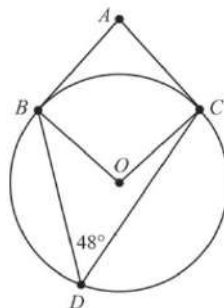
2. In circle P below, AB is a diameter.

If $m\angle APC = 100°$, find the following:

  a. $m\angle BPC$

  b. $m\angle BAC$

  c. mBC

  d. mAC

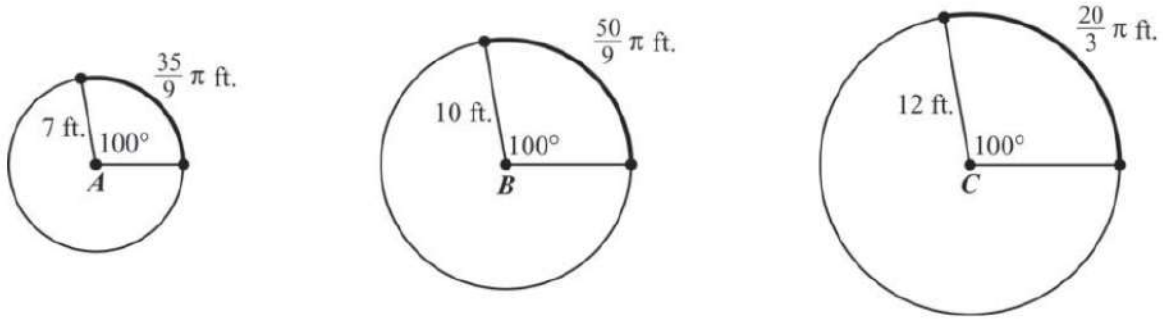3. In circle P below, DG is a tangent. $AF = 8$, $EF = 6$, $BF = 4$, and $EG = 8$. Find CF and DG.

4. In this circle, AB is tangent to the circle at point B, AC is tangent to the circle at point C, and point D lies on the circle. What is $m\angle BAC$?
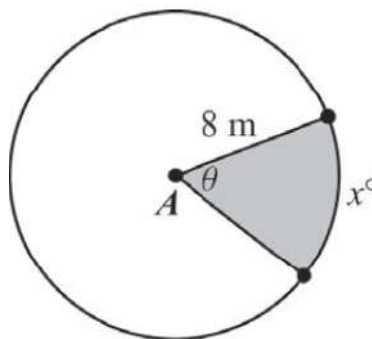
5. Circles *A*, *B*, and *C* have a central angle measuring 100°. The length of each radius and the length of each intercepted arc are shown.

a. What is the ratio of the radius of circle *B* to the radius of circle *A*?

b. What is the ratio of the length of the intercepted arc of circle *B* to the length of the intercepted arc of circle *A*?

c. Compare the ratios in parts (a) and (b).

d. What is the ratio of the radius of circle *C* to the radius of circle *B*?

e. What is the ratio of the length of the intercepted arc of circle *C* to the length of the intercepted arc of circle *B*?

f. Compare the ratios in parts (d) and (e).

g. Based on your observations of circles *A*, *B*, and *C*, what conjecture can you make about the length of the arc intercepted by a central angle and the radius?

h. What is the ratio of arc length to radius for each circle?

6. Circle *A* is shown. If *x* = 50, what is the area of the shaded sector of circle *A*?

7. What is the volume of the cone shown below?

17 cm

16 cm
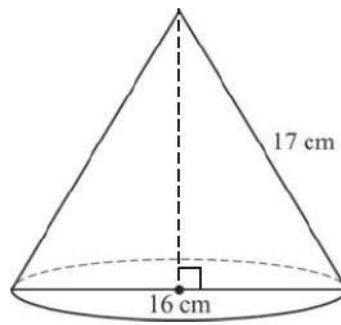
8. A sphere has a radius of 3 feet. What is the volume of the sphere?

9. A cylinder has a radius of 10 cm and a height of 9 cm. A cone has a radius of 10 cm and a height of 9 cm. Show that the volume of the cylinder is three times the volume of the cone.

10. Cylinder A and Cylinder B are shown below. What is the volume of each cylinder?

10 m

12 m

Cylinder A

10 m

12 m

Cylinder B