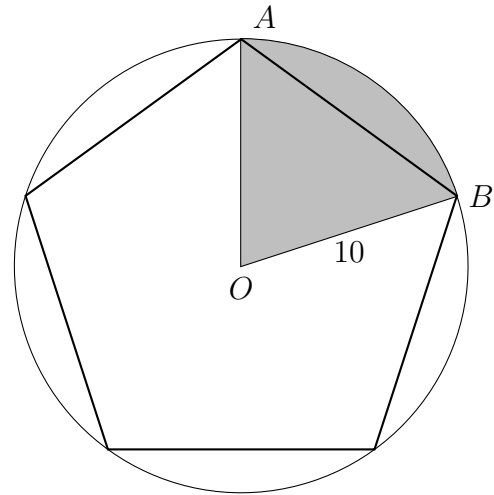


Name:

### 8.3 Do Now: Density

1. A pentagon is inscribed in circle  $O$ , as shown below. The circle has radius  $r = 10$ .

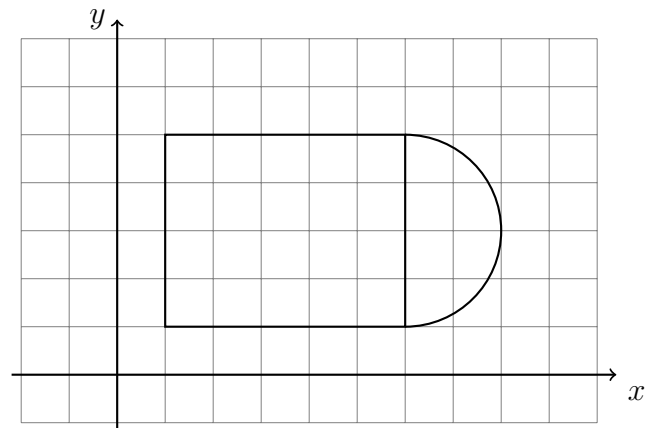
(a) Find the area of the sector  $AOB$ .



(b) Find the perimeter of the sector  $AOB$ .

2. A cylinder is  $12.3$  cm tall and has a volume of  $966$  cubic cm. Find the area of the base of the cylinder. Express your result to the *nearest hundredth of a square centimeter*.

3. Find the area of the shape shown below composed of a rectangle and a semi-circle.



**Estimating and measuring**

4. The diagram below shows  $\triangle ABC$ , with  $\overline{AEB}$ ,  $\overline{ADC}$ .  $AB = 12$ ,  $AD = 6$ . Estimate  $BC$ , assuming that the diagram below is drawn to scale.

Write the actual lengths of

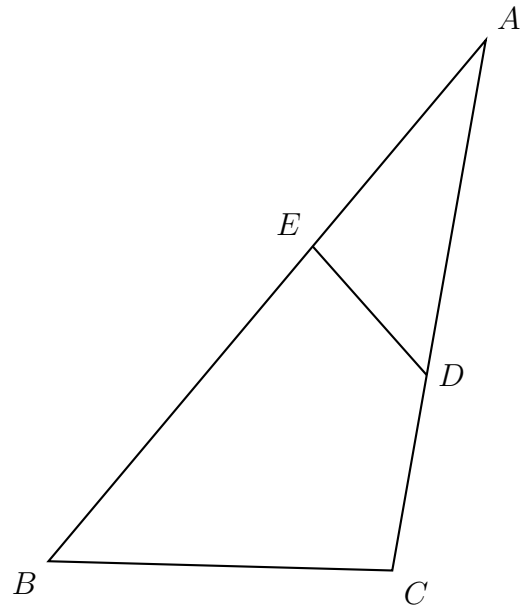
(a)  $AB =$

(b)  $AD =$

(c)  $BC =$

(d) Find the scale factor,  $k$

(e) Calculate  $BC =$

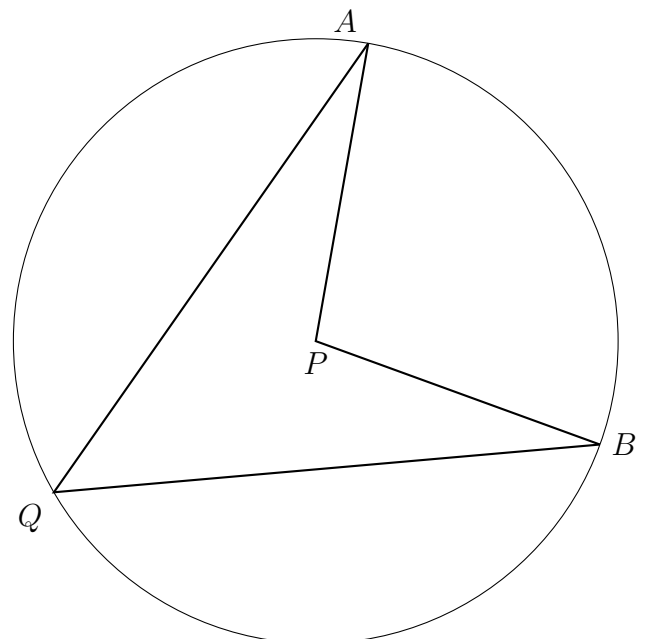


5. Given the circle with center  $P$  with central angle  $\angle APB$  and inscribed angle  $\angle AQB$ . Using a protractor, measure each angle.

(a)  $m\angle APB =$

(b)  $m\angle AQB =$

- (c) What do you think is the ratio of the central angle to the inscribed angle?



Name:

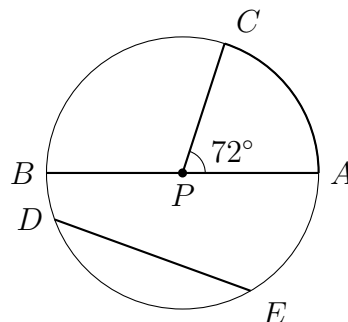
**Applying density ratios**

6. Find the weight of a metal block with a volume of 20 cubic inches and a density of 0.75 pounds per cubic inch.
  
  
  
  
  
  
  
  
  
  
7. A large block of ice has a volume of 45 liters. The density of ice (water) is one kilogram per liter. Find the weight of the ice.
  
  
  
  
  
  
  
  
  
  
8. A tank of gasoline holds 20 gallons. Find the cost to completely fill the tank if gasoline costs \$2.35 per gallon.
  
  
  
  
  
  
  
  
  
  
9. A bar of solid gold is in the shape of a rectangular prism having a length of 10 cm, width of 4 cm, and thickness of 1.5 cm. The density of gold is 19.3 grams per cubic cm, and its approximate market value is \$50 per gram.
  - (a) Find the weight of the bar of gold.
  
  
  
  
  
  
  
  
  
  
  - (b) Find its value in dollars.

**Vocabulary self-assessment: Circles (fill in the blank with the correct term)**

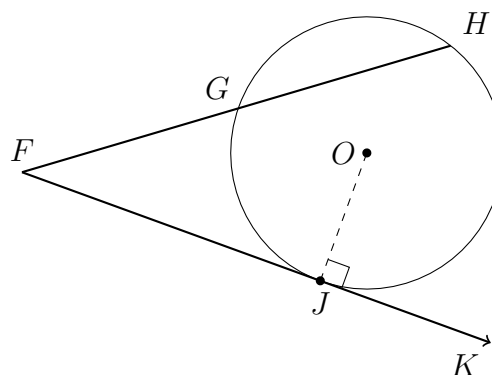
10. **Internal line segments:** Circle with center at point  $P$ , as shown.

- $\overline{AB}$  \_\_\_\_\_
- $\overline{CP}$  \_\_\_\_\_
- $\overline{DE}$  \_\_\_\_\_
- $\angle APC$  \_\_\_\_\_
- $\widehat{AC}$  \_\_\_\_\_



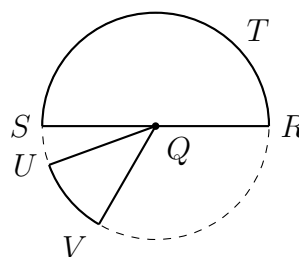
11. **External lines:** Circle with center at point  $O$ , at right.

- $\overline{FGH}$  \_\_\_\_\_
- $\overline{OJ}$  \_\_\_\_\_
- $\overline{FJK}$  \_\_\_\_\_
- $J$  \_\_\_\_\_



12. **Areas:** Circle with center at point  $Q$ .

- $\overline{RS}$  \_\_\_\_\_
- $\angle RST$  \_\_\_\_\_
- $\angle QUV$  \_\_\_\_\_



13. **Polygons and angles in circles:**

- $\triangle XYZ$  \_\_\_\_\_
- $\angle XYZ$  \_\_\_\_\_

