

**8.6 Exam: Area, volume, solids, circles review**

*Unless otherwise instructed, find an exact answer, in terms of  $\pi$  or using radicals if necessary.*

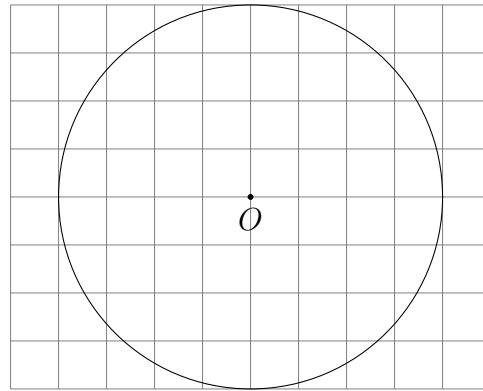
1. Use the formulas for the area and circumference of circles:

$$A = \pi r^2$$

$$C = \pi D = 2\pi r$$

2. Given the circle centered at  $O$  with radius  $r = 4$ . Leave an exact answer, in terms of  $\pi$  if necessary.

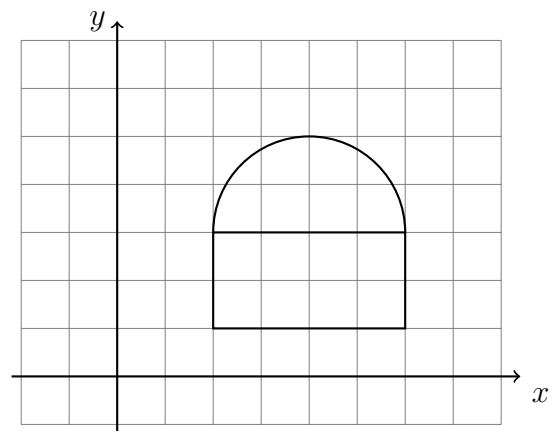
(a) Find the circumference of circle  $O$ .



(b) Find the area of the circle.

3. Find the radius of a circle having an area of  $49\pi$ .

4. Find the area of the shape shown below composed of a rectangle and circular cap. Leave your answer as an exact value in terms of  $\pi$ .

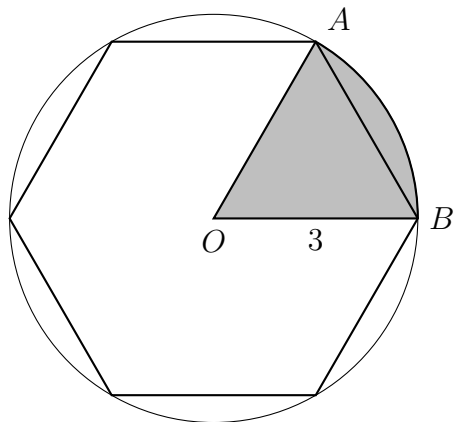


5. A regular hexagon (6 sides) is inscribed in circle  $O$ , having a radius  $r = 3$ .

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

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

(c) Find the measure of central angle  $\angle AOB$



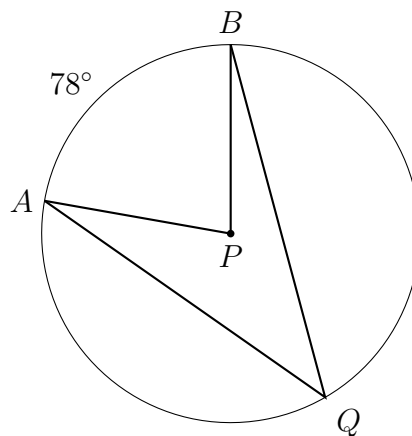
6. Given the circle with center  $P$  with central angle  $\angle APB$  and inscribed angle  $\angle AQB$ . The intercepted arc has a measure  $m\widehat{AB} = 78^\circ$ .

(a) Find  $m\angle APB =$

(b) Find  $m\angle AQB =$

Circle True or False:

- i. T F  $\overline{AP}$  is a radius
- ii. T F  $\overline{AQ}$  is a chord
- iii. T F  $\angle APB$  is a central angle



7. Given  $R(-1, 1)$  and  $S(3, 4)$ , find the length of  $\overline{RS}$ . Note:  $l = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ .

8. Perform each calculation, writing down the full calculator display and then rounding to the *nearest hundredth*.

(a)  $V = \frac{1}{3}\pi(2.7)^2(1.1)$

(b)  $W = 5.1 + \frac{1}{2}\pi(7.1)$

9. Solve each equation for the appropriate variable. Do not round. Simplify radicals.

(a)  $A = \pi r^2 = 18\pi$

(b)  $V = \frac{1}{4}(2.2)^2h = 12.1$

**Model the situation with an equation. Use the formula sheet. You must start with a labeling variable. Do NOT solve!**

10. A spherical cork fishing net float has a volume of 1700 cubic centimeters. Find its radius.
11. A large concrete post in the shape of a cylinder has a volume of 190 cubic feet. Its height is 11 feet. Find the radius of the base of the post.
12. The volume of a cone having a **diameter** of 9 inches is 48 cubic inches. Find the cone's height.

**Applying density ratios**

13. A tank of gasoline holds 17 gallons. Find the cost to completely fill the tank if gasoline costs \$4.35 per gallon.
  
  
  
  
  
  
  
  
  
  
14. A tub of lard has a volume of 100 cubic centimeters. If the density of lard is 0.85 grams per cubic centimeter, find the weight of the tub of lard.
  
  
  
  
  
  
  
  
  
  
15. A large glass marble has a diameter of 2.8 cm. The density of glass is  $3.10 \text{ g/cm}^3$ . Find the weight of the marble.
  
  
  
  
  
  
  
  
  
  
16. A bar of solid gold is in the shape of a rectangular prism having a length of 18 cm, width of 8 cm, and thickness of 2.25 cm. The density of gold is 19.3 grams per cubic cm, and its approximate market value is \$55 per gram.
  - (a) Find the weight of the bar of gold.
  
  
  
  
  
  
  
  
  
  
  - (b) Find its value in dollars.

17. Perform each calculation, writing down the full calculator display and then rounding to the *nearest hundredth*.

(a)  $A = 15.944732$

(e)  $V = 199.19711$

(b)  $W = 3.4 \times 9.8 \times 4.3 \times 0.15$

(f)  $W = \frac{1}{3}(13)3.3^2 \times 1.175$

(c)  $V = \frac{1}{3}\pi(3.4)^2(6.1)$

(g)  $V = \frac{1}{3}\pi(12.4)^2(8.1)$

(d)  $P = 8.6 + \frac{1}{2}\pi(8.6)$

(h)  $P = 12 + \frac{1}{4}\pi(12)$