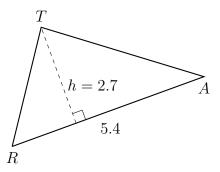
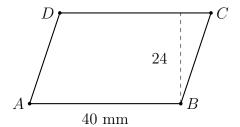
4.8 Pretest: Solids, volume, and density

1. Find the area of $\triangle RAT$. The altitude h of the triangle is 2.7 centimeters and the base RA = 5.4 cm. Show work by writing an equation before making the calculation.



2. Find the area of the parallelogram ABCD shown below, with AB=40 millimeters and height h=24 mm.



3. A wooden cutting board is $11\frac{1}{4}$ inches long, 8 inches wide, and $1\frac{1}{2}$ inches thick. Find the volume of wood in cubic inches. (diagram not to scale)



Model the situation with an equation. Use formulas from your notebook. You must start with a labeling variable.

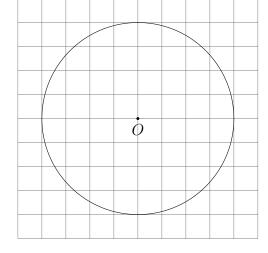
Do NOT solve!

4. Worked example: Find the radius of a circle circumference of 14.7.

$$C = 2\pi r = 14.7$$

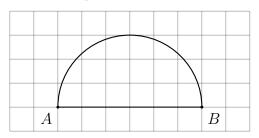
- 5. A prism has a base area of 20 square centimeters. Its volume is 200 cubic centimeters. Find the prism's height, h.
- 6. A water tank in the shape of a cylinder has a volume of 250 cubic feet. Its height is 12 feet. Find the radius of the base of the tank.
- 7. A spherical cork fishing net float has a volume of 4000 cubic centimeters. Find its radius.
- 8. The volume of a cone having a **diameter** of 10 inches is 200 cubic inches. Find the cone's height.
- 9. The volume of the Great Pyramid of Giza, the tomb of Pharoah Khufu, is approximately 2,500,000 cubic meters. It is 140 meters tall. Find the area of its base.
- 10. The smaller pyramid for his wife, Queen Meretites, has a square base with an area of 2500 square meters. Find the length of the side of its base, s.

- 11. Given the circle centered at O with radius r=4. Leave answers in terms of π .
 - (a) Write down the length of the circle's diameter.
 - (b) Find the circumference of a circle.



(c) Find the area of the circle.

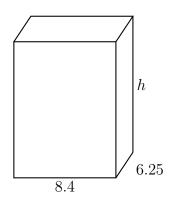
12. Given the semi-circle shown with diameter AB = 6. Find its perimeter in terms of π .



13. The rectangular prism shown has a volume of V=735 cubic feet. Its base measures l=8.4 feet by w=6.25 feet.

Find its height. Begin by writing the following formula with values substituted:

$$V = l \times w \times h = 735$$

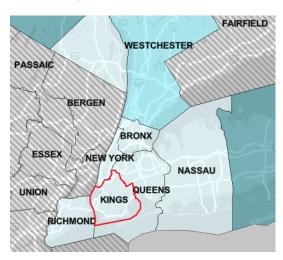


14. A typical bill board measures 14 feet high by 48 feet wide. If billboard paper costs approximately 15 cents per square foot, how much would the paper cost to cover a typical billboard?

15. Find the population density of Brooklyn, (Kings County) in people per square mile.

Population estimate: 2,559,903 (July 2019)

Source: US Census (census.gov) Land area in square miles: 69.4



16. The American Eagle gold coin is minted by the US Treasury. The one ounce coin has a radius of about r=16 millimeters and thickness h=3 mm. Given a density of D=0.014 grams per cubic millimeter, find the coin's volume and weight.

Show the substitution into both formulas for full credit.

$$V = \pi r^2 h$$
 and $W = VD$

