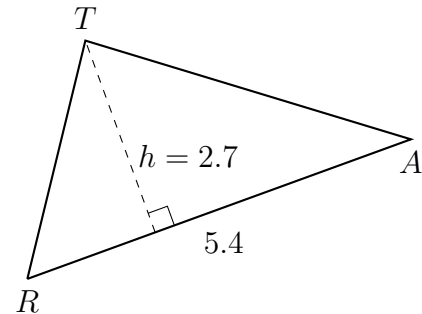


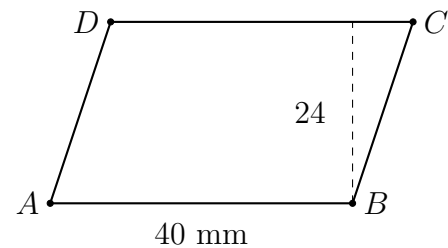
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4.8 Pretest: Solids, volume, and density

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 with circumference of 14.7.

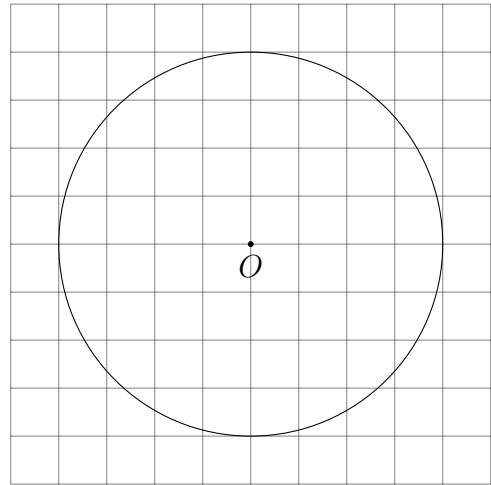
$$C = 2\pi r = 14.7$$

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 .

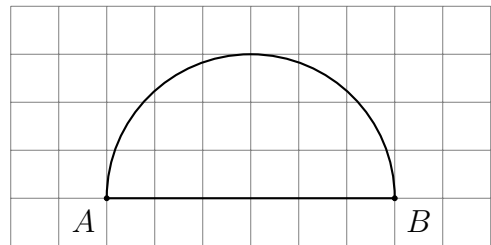
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11. Given the circle centered at O with radius $r = 4$. Leave answers in terms of π .

- (a) Write down the length of the circle's diameter.
- (b) Find the circumference of a circle.
- (c) Find the area of the circle.



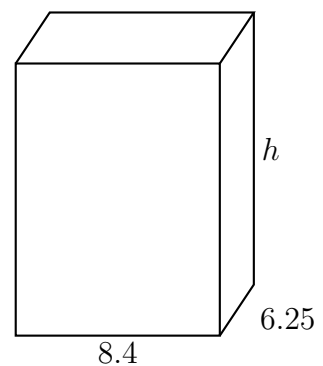
12. Given the semi-circle shown with diameter $AB = 6$. Find its perimeter in terms of π .



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:

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



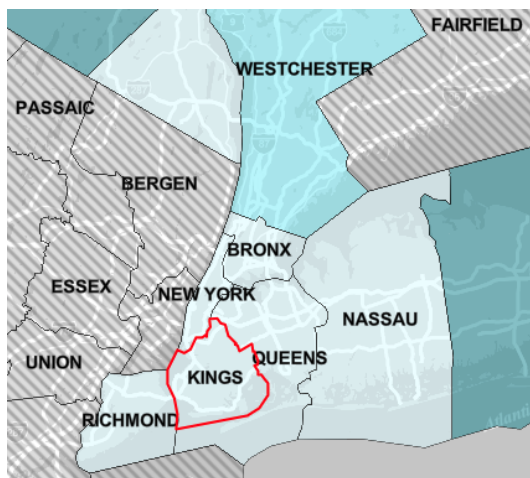
14. A typical bill board measures 14 feet high by 48 feet wide. If billboard paper costs approximately 15 cents per square foot, how much would the paper cost to cover a typical billboard?

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.

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

