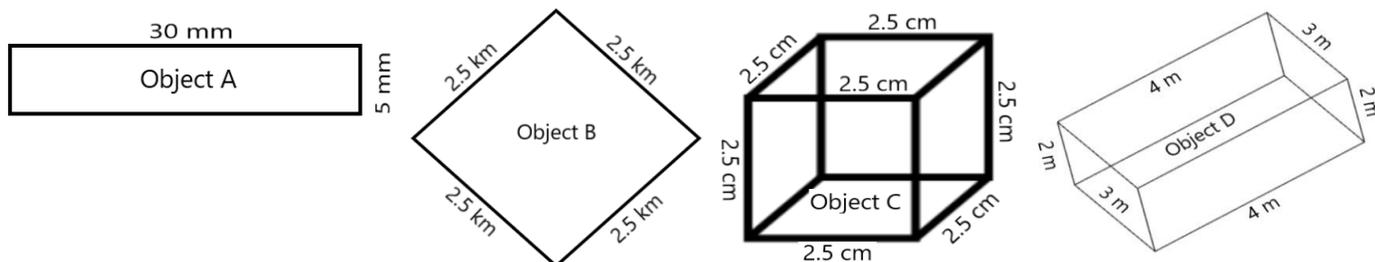


# Density

A HYDEscience Customized Sheet for Work

1. Find the area of 2 dimensional objects or the Volume 3 dimensional objects found below.



2. Solve the equations below for the missing variable.

$$X = \frac{12}{3}$$

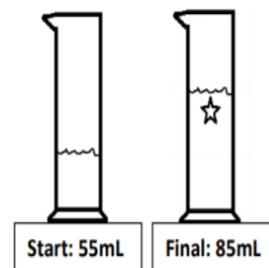
$$4 = \frac{X}{2}$$

$$2.5 = \frac{10}{X}$$

3. Solve for the density of an object if the mass is 40 grams and the volume is 20 cm<sup>3</sup>.
4. Find the density of an object that has a mass of 80 grams and a volume of 160 mL.
5. .30-06 bullets (projectiles) have a median mass of 10.4 grams. **What is the volume** (size) of a .30-06 bullet made from 100% lead? Lead has a density of approximately 11.5 g/cm<sup>3</sup>.
6. A typical ¼ pound hamburguesa has a mass of about 114 grams prior to all that beautiful mucho delicioso fat is rendered during the cooking process. 76.2% ground beef has a density just slightly above 1.00 g/cm<sup>3</sup>. How big (**what is the volume**) of a typical quarter pound hamburger?
7. A human shows up to a pawn shop with several gold jewelry items, wanting to sell them. Assume you are the owner of the pawn shop, and have used your special magic powers to determine it is 100% pure gold. In order to determine how much the gold is worth you need to figure out how much gold is there. The gold has a total mass of 2220 grams. Pure gold has a density of 19 g/cm<sup>3</sup>. **What is the volume of the gold?**

8. Gold is worth \$48.75 per gram. **What is the value** of the gold discussed in question #7?

9. Use the diagram with the two graduated cylinders to answer this question. An object is inserted into a graduated cylinder currently holding 55 mL of H<sub>2</sub>O in it. Once the object is inserted into the water, the water level rose to 85 mL. What is the volume of the object?



10. **What is the Density** of the object discussed in previous question, if it has a mass of 9g.
11. Assume you have a 100 gram sample of each, which sample would take up the most space, due to having the largest volume?
12. If you were given a 5 gallon bucket full of each item listed, which bucket would be the heaviest because it has the most mass?

Substance	Density
Air	0.0013 g/cm <sup>3</sup>
Oak Wood	0.85 g/cm <sup>3</sup>
H <sub>2</sub> O	1.0 g/cm <sup>3</sup>
Solid H <sub>2</sub> O (Ice)	0.93 g/cm <sup>3</sup>
Al	2.7 g/cm <sup>3</sup>
Pb	11.3 g/cm <sup>3</sup>
Au	19.3 g/cm <sup>3</sup>
Ethanol	0.94 g/cm <sup>3</sup>
Methanol	0.79 g/cm <sup>3</sup>