

SCIENCE 8 – DENSITY CALCULATIONS WORKSHEET

Remember 2

NAME: _____

ANSWERS

$$1 \text{ mL} = 1 \text{ cm}^3$$

- 1) A student measures the mass of an 8 cm^3 block of brown sugar to be 12.9 g. What is the density of the brown sugar?

$$1.61 \text{ g/cm}^3$$

- 2) A chef fills a 50 mL container with 43.5 g of cooking oil. What is the density of the oil?

$$0.87 \text{ g/cm}^3$$

- 3) Calculate the mass of a liquid with a density of 2.5 g/mL and a volume of 15 mL.

$$37.5 \text{ g}$$

- 4) Calculate the volume of a liquid with a density of 5.45 g/mL and a mass of 65 g.

$$11.9 \text{ mL}$$

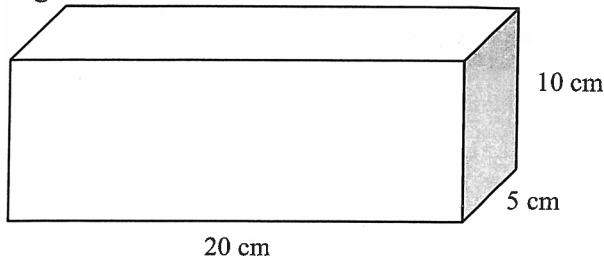
- 5) A machine shop worker records the mass of an aluminum cube as 176 g. If one side of the cube measures 4 cm, what is the density of the aluminum?

$$2.75 \text{ g/cm}^3$$

- 6) A teacher performing a demonstration finds that a piece of cork displaces 23.5 mL of water. The piece of cork has a mass of 5.7 g. What is the density of the cork?

$$0.24 \text{ g/cm}^3$$

- 7) A carver begins work on the following block of granite that weighs 2700 g. What is the density of the granite?



$$2.7 \text{ g/cm}^3$$

- 8) A piece of PVC plumbing pipe displaces 60 mL when placed into a container of water. If the pipe has a mass of 78 g, what is the density of PVC?

$$1.3 \text{ g/cm}^3$$

- 9) A solid magnesium flare has a mass of 1300 g and a volume of 743 cm^3 . What is the density of the magnesium?

$$1.75 \text{ g/cm}^3$$

10) A graduated cylinder has a mass of 50 g when empty. When 30 mL of water is added, the graduated cylinder has a mass of 120 g. If a rock is added to the graduated cylinder, the water level rises to 75 mL and the total mass is now 250 g. What is the density of the rock?

$$\rho = 1.78 \text{ g/cm}^3$$

11) A student performs an experiment with three unknown fluids and obtains the following measurements:

Fluid A: $m = 2060 \text{ g}$, $V = 2000 \text{ mL}$

Fluid B: $m = 672 \text{ g}$, $V = 850 \text{ mL}$

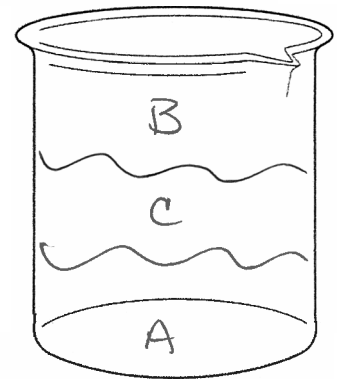
Fluid C: $m = 990 \text{ g}$, $V = 1100 \text{ mL}$

$$= 1.03 \text{ g/cm}^3$$

$$= 0.80 \text{ g/cm}^3$$

$$= 0.9 \text{ g/cm}^3$$

Draw how the fluids would be layered if they were combined in a beaker.



12) Use your density skills to find the identity of the following mystery objects.

Table of Densities			
Solids	Density g/cm^3	Solids	Density g/cm^3
Marble	2.56	Copper	8.92
Quartz	2.64	Gold	19.32
Diamond	3.52	Platinum	21.4



While digging in the backyard, you find an old coin. Its mass is 26.76 g and its volume is 3 cm.

What is the coin made of? copper



You think you have found a diamond. Its mass is 5.28 g and its volume is 2 cm³.

What did you find? quartz



You find a ring with a mass of 107 g. You fill a graduated cylinder up with 10 mL of water and put the ring into the cylinder. The water rises up to the 15 mL mark.

What is the ring made of? Platinum



There is a block on your desk that acts as a paperweight. Its measurements are 3 cm by 4 cm by 6 cm. The block has a mass of 184.32 g.

What is the block made of? marble