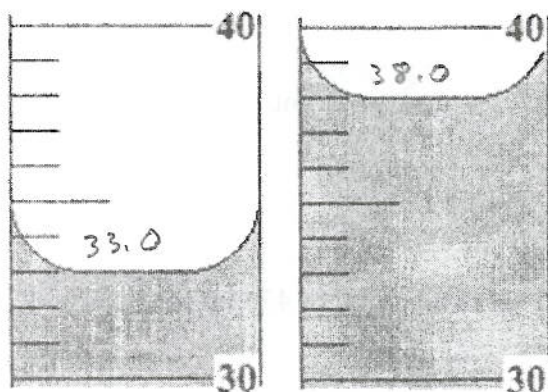


Name \_\_\_\_\_

Density Quiz

1. A student finds the mass of a solid object to be **28.026** grams. The student places some water in a graduated cylinder. After adding the solid object the water level rises as shown below.

What is the density of the object? Density =  $\frac{28.026 \text{ g}}{5.0 \text{ ml}} = 5.6 \text{ g/cm}^3$



$$\frac{28.026 \text{ g}}{5.0 \text{ ml}}$$

2. A solid metal cylinder has a diameter of 8.0 cm, and a height of 12.0 cm. If it has a mass of 4.12 Kg, what is the density of the cylinder in  $\text{g/cm}^3$ ?

$$V = \pi (4.0 \text{ cm})^2 12.0 \text{ cm}$$

$$\frac{4120 \text{ g}}{603.1857 \text{ cm}^3} = 6.8303 \frac{\text{g}}{\text{cm}^3}$$

$$\boxed{6.8} \text{ g/cm}^3$$

3. A cylinder with a diameter of 6.00 cm and a mass of 60.50 grams has a density of 2.24  $\text{g/cm}^3$ . What is the height of the cylinder?

$$d = \frac{m}{V}$$

$$V = \frac{m}{d} = \frac{60.50 \text{ g}}{2.24 \text{ g/cm}^3}$$

$$V = \pi r^2 h$$

$$h = \frac{V}{\pi r^2} = \frac{27.008928 \text{ cm}^3}{\pi (3.00 \text{ cm})^2}$$

$$\boxed{0.955} \text{ cm}$$

0.956

4. A beaker holds one liter when full. You place 333 ml of water in the beaker and submerge a solid steel cylinder in the water. If the cylinder has a diameter of 6.00 cm and a height of 8.00 cm, what is the level of the water in the beaker when the cylinder is completely submerged?

$$V = \pi r^2 h$$

$$\pi (3.00 \text{ cm})^2 8.00 \text{ cm}$$

$$V = 226.19467 \text{ cm}^3 + 333 \text{ mL} =$$

$$\boxed{559} \text{ mL}$$

5. A liquid has a density of 2.88 g/mL. What is the mass of 434 ml of this liquid? Answer in kilograms.

$$d = \frac{m}{V}$$

$$m = d V$$

$$= 2.88 \frac{\text{g}}{\text{mL}} \times 434 \text{ mL}$$

$$\boxed{1.25} \text{ kilograms}$$

$$= 1249.92 \text{ g}$$

6. A metal ball has a density of 8.76 g/cm<sup>3</sup>, and a mass of 0.424 Kilograms. If it is placed in a graduated cylinder that already contains 40.0 mL of water, what will be the final water level reading on the graduated cylinder?

$$d = \frac{m}{V}$$

$$V = \frac{m}{d} = \frac{424 \text{ g}}{8.76 \text{ g/cm}^3} = 48.4018 \text{ cm}^3 + 40.0 \text{ mL}$$

$$\boxed{88.4} \text{ mL}$$