

Name _____ Period _____

Chemistry 1 Density-Math

Show all work with units and significant figures. An example of each is done for you. On the back, you will find additional problems that you will need to solve.

1. Determine the densities of the following:

Example - Cobalt; $m=16.3\text{ g}$, $v=1.80\text{ cm}^3$

$$\frac{16.3\text{g}}{1.80\text{cm}^3} = 9.06 \frac{\text{g}}{\text{cm}^3}$$

a. Tungsten; $m=180\text{ g}$, $v=9.30\text{ cm}^3$

b. Silicon; $m=10.0\text{ g}$, $v=4.29\text{ cm}^3$

2. Determine the mass of the following:

Example - Mercury; $D=13.5\text{ g/cm}^3$, $v=25.0\text{ mL}$ (remember $1\text{ mL} = 1\text{ cm}^3$)

$$25.0\text{mL} \times \frac{13.5\text{g}}{1\text{cm}^3} = 338\text{g}$$

a. Platinum; $D=21.4\text{g/cm}^3$, $v=50.2\text{cm}^3$

b. Zinc; $D=7.13\text{g/cm}^3$, $v=11.5\text{cm}^3$

3. Determine the volume of the following:

Example - Germanium; $D=5.32\text{g/cm}^3$, $m=50.0\text{g}$

$$50.0\text{g} \times \frac{1\text{cm}^3}{5.32\text{g}} = 9.40\text{cm}^3$$

a. Boron; $D= 2.34\text{g/cm}^3$, $m=79.3\text{g}$

b. Iodine; $D=4.93\text{g/cm}^3$, $m=29.4\text{g}$

4. What is the volume of 80.0 g of ether if the density of ether is 0.70 g/mL?

5. What is the density of an object having a mass of 8 g and a volume of 25 cm³?

6. What is the mass of a bone that has a volume of 80.0 cm³ and a density of 1.5g/ cm³?

7. What is the volume of a liquid that has a density of 0.90 g/ cm³ and a mass of 60.0 g?

8. What is the volume of 344 g of ice if the density of ice is 0.92 g/mL?

9. What is the density of an object if the mass is 45.6 g and the volume is 4.34 cm³?

10. If the density of an object is 7.14 g/ cm³ and the volume is 2.5 cm³, what is the mass?