

Density Practice Worksheet

$$D = \frac{M}{V}$$

Name Key Period Date

Data Table: Density values of common substances at 20°C in g/cm³

Substance	Density	Substance	Density
Ethanol	0.790	Aluminum	2.70
Water	1.000	Iron	7.87
Lead	11.35	Gold	19.32
Chloroform	1.49	Copper	8.96
Mercury	13.55	Silver	10.50

$1 \text{ kg} = 1000 \text{ g}$
 $1 \text{ L} = 1000 \text{ mL}$
 $1 \text{ oz} = 28.3 \text{ g}$
 $1 \text{ qt} = 0.946 \text{ L}$

Practice Problems: (Show work, use sig figs – remember density is a measurement)

- 1) Convert the density of Gold from g/cm³ to kg/L and ounce/quart.

$$\frac{19.32 \text{ g}}{\text{cm}^3} \times \frac{1 \text{ cm}^3}{1 \text{ mL}} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 19.32 \frac{\text{kg}}{\text{L}}$$

$$19.32 \frac{\text{g}}{\text{cm}^3} \times \frac{1 \text{ cm}^3}{1 \text{ mL}} \times \frac{1 \text{ oz}}{28.3 \text{ g}} \times \frac{1000 \text{ mL}}{1 \text{ L}} \times \frac{1 \text{ qt}}{0.946 \text{ L}} = 645.8 \frac{\text{oz}}{\text{qt}}$$

- 2) Find the volume 1500.g of silver.

$\frac{V}{\text{cm}^3}$

$$\frac{1500. \text{ g}}{10.50 \frac{\text{g}}{\text{cm}^3}} = 142.9 \text{ cm}^3$$

- 3) Find the mass of 1200.0cm³ of lead.

$\frac{M}{\text{g}}$

$$\frac{1200.0 \text{ cm}^3}{1} \times \frac{11.35 \text{ g}}{\text{cm}^3} = 13620 \text{ g}$$

- 4) What is a 400.0 mL metal object of mass ~~500.0~~g made of?

$\frac{D}{\text{g/cm}^3}$

$$\frac{3150 \text{ g}}{400.0 \text{ mL}} \times \frac{1 \text{ mL}}{1 \text{ cm}^3} = 7.875 \frac{\text{g}}{\text{cm}^3}$$