

## Worksheet #5: Conversion Practice

Solve, using units, sig figs, and showing your set-ups for each.

I. Given the following exact equalities:

$$\begin{array}{l} 4 \text{ piks} = 1 \text{ jab} \qquad 3 \text{ gleps} = 2 \text{ borks} \qquad 3 \text{ toves} = 5 \text{ borks} \\ 5 \text{ jabs} = 2 \text{ snubs} \qquad 5 \text{ gleps} = 1 \text{ snub} \qquad 1 \text{ tove} = 5 \text{ piks} \end{array}$$

1)  $5 \text{ gleps} = \underline{\hspace{2cm}} \text{ snubs}$

$$5 \text{ gleps} \times \frac{1 \text{ snub}}{5 \text{ gleps}} = 1 \text{ snub}$$

2)  $12 \text{ piks} = \underline{\hspace{2cm}} \text{ gleps}$

$$12 \text{ piks} \times \frac{1 \text{ jab}}{4 \text{ piks}} \times \frac{2 \text{ snubs}}{5 \text{ jabs}} \times \frac{5 \text{ gleps}}{1 \text{ snub}} = 6 \text{ gleps}$$

3)  $25 \text{ borks} = \underline{\hspace{2cm}} \text{ toves}$

$$25 \text{ borks} \times \frac{3 \text{ toves}}{5 \text{ borks}} = 15 \text{ toves}$$

4)  $8 \text{ snubs} = \underline{\hspace{2cm}} \text{ piks}$

$$8 \text{ snubs} \times \frac{5 \text{ jabs}}{2 \text{ snubs}} \times \frac{4 \text{ piks}}{1 \text{ jab}} = 80 \text{ piks}$$

5)  $800 \text{ gleps} = \underline{\hspace{2cm}} \text{ toves}$

$$800 \text{ gleps} \times \frac{2 \text{ borks}}{3 \text{ gleps}} \times \frac{3 \text{ toves}}{5 \text{ borks}} = 320 \text{ toves}$$

II. Metric Conversions: use the chart titled "SI Prefixes" to convert the following:

6) How many meters are in 3.98 kilometers? 3980 m

7) How many bytes are in 29.22 gigabytes?  $2.922 \times 10^{10}$  bytes

8) How many milliliters are in 467.9 centiliters? 4679 mL

9) How many picograms are in .0876 centigrams?  $8.76 \times 10^8$  pg

10) How many millimeters are in 3.50 kilometers?  $3.50 \times 10^6$  mm

11) How many terabytes are in  $2.5 \times 10^4$  kilobytes?  $2.5 \times 10^{-5}$  terabytes

12) How many liters are in  $3.65 \times 10^{12}$  milliliters?  $3.65 \times 10^9$  liters

III. Using density as a conversion factor. Solve, showing your set-ups for each.

Table of Known Densities:

Metal	Density	Metal	Density
aluminum	2.702 g/cm <sup>3</sup>	magnesium	1.745 g/cm <sup>3</sup>
barium	3.51 g/cm <sup>3</sup>	mercury	13.546 g/cm <sup>3</sup>
calcium	1.54 g/cm <sup>3</sup>	titanium	4.50 g/cm <sup>3</sup>
lithium	0.534g/cm <sup>3</sup>	platinum	21.45 g/cm <sup>3</sup>
copper	8.92 g/cm <sup>3</sup>	silicon	2.33 g/cm <sup>3</sup>
gold	19.31 g/cm <sup>3</sup>	silver	10.5 g/cm <sup>3</sup>
iron	7.86 g/cm <sup>3</sup>	tin	7.28 g/cm <sup>3</sup>
lead	11.34 g/cm <sup>3</sup>	zinc	7.14 g/cm <sup>3</sup>

1.000 pounds = 453.59 grams  
1.000 grams = 0.0353 ounces

1 cm<sup>3</sup> = 1 cc = 1 mL  
1.000 teaspoons = 4.9289 mL

13) 46.9 cm<sup>3</sup> zinc = \_\_\_\_\_ grams zinc

$$46.9 \text{ cm}^3 \text{ Zn} \times \frac{7.14 \text{ g}}{\text{cm}^3} = 335 \text{ g Zn}$$

14) 150. grams Si = \_\_\_\_\_ cm<sup>3</sup> Si

$$150. \text{ g Si} \times \frac{\text{cm}^3}{2.33 \text{ g}} = 64.4 \text{ cm}^3 \text{ Si}$$

15) 54.89 cm<sup>3</sup> Mg = \_\_\_\_\_ ounces Mg

$$54.89 \text{ cm}^3 \text{ Mg} \times \frac{1.745 \text{ g}}{\text{cm}^3} \times \frac{0.0353 \text{ ounces}}{1 \text{ gram}} = 3.38 \text{ ounces Mg}$$

16) 98.7 ounces gold = \_\_\_\_\_ mL gold

$$98.7 \text{ oz Au} \times \frac{1 \text{ gram}}{0.0353 \text{ ounces}} \times \frac{\text{cm}^3}{19.31 \text{ gram}} \times \frac{1 \text{ mL}}{1 \text{ cm}^3} = 144 \text{ mL Au}$$

17) 709 pounds Hg = \_\_\_\_\_ liters Hg

$$709 \text{ pound Hg} \times \frac{453.59 \text{ g}}{1 \text{ pound}} \times \frac{\text{cm}^3}{13.546 \text{ g}} \times \frac{1 \text{ mL}}{1 \text{ cm}^3} \times \frac{1 \text{ Liter}}{1000 \text{ mL}} = 23.7 \text{ L Hg}$$

18) 323 teaspoons copper = \_\_\_\_\_ pounds copper

$$323 \text{ tsp Cu} \times \frac{4.9289 \text{ mL}}{1 \text{ tsp}} \times \frac{1 \text{ cm}^3}{1 \text{ mL}} \times \frac{8.92 \text{ g}}{1 \text{ cm}^3} \times \frac{1 \text{ pound}}{453.59 \text{ g}} = 31.3 \text{ pounds Cu}$$