

Name _____ Date _____ Hour _____

Chemistry Worksheet – Factor Labeling II

1. Express each of the following as a 3 significant digit number in scientific notation.

a. 678,900,897

$$6.79 \times 10^8$$

b. 0.0000000234

$$2.34 \times 10^{-8}$$

c. 657,000

$$6.57 \times 10^5$$

d. 0.0018645

$$1.86 \times 10^{-3}$$

2. Convert the following using a factor label table.

K H D B D C M
1000 100 10 1 100 1000

a. 60.0 cm to km

$$\frac{1 \text{ km}}{1000 \text{ m}} \times \frac{1 \text{ m}}{100 \text{ cm}} \times 60.0 \text{ cm} = 0.000600 \text{ km or } 6.00 \times 10^{-4} \text{ km}$$

b. 87.3 mL to L

$$\frac{1 \text{ L}}{1000 \text{ mL}} \times 87.3 \text{ mL} = 0.0873 \text{ L or } 8.73 \times 10^{-2} \text{ L}$$

c. 1560 km to dm (decimeter)

$$\frac{10 \text{ dm}}{1 \text{ m}} \times \frac{1000 \text{ m}}{1 \text{ km}} \times 1560 \text{ km} = 15,600,000 \text{ dm or } 1.56 \times 10^7 \text{ dm}$$

d. 230 cm³ to kL

$$\frac{1 \text{ kL}}{1000 \text{ L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times \frac{1 \text{ mL}}{1 \text{ cm}^3} \times 230 \text{ cm}^3 = 0.00023 \text{ kL or } 2.3 \times 10^{-4} \text{ kL}$$

e. 3.678 ms to s

$$\frac{1 \text{ s}}{1000 \text{ ms}} \times 3.678 \text{ ms} = 0.003678 \text{ s or } 3.678 \times 10^{-3} \text{ s}$$

3. Conversion Table: Weight/mass
 1 kg = 2.2 lb

Volume
 1 L = 1.06 qt

Length
 1 m = 39.37 in

a. Danica Patrick can cover a distance of 100 yards in 0.500 seconds. What is her speed in meters per hour?

$$\frac{100 \text{ yd}}{0.500 \text{ sec}} \rightarrow \frac{\text{m}}{\text{hr}}$$

1 m	36 in	100 yd	60 sec	60 min	= 658,000 m/hr or $6.58 \times 10^5 \text{ m/hr}$
39.37 in	1 yd	0.500 sec	1 min	1 hr	

b. My Toyota gets 31.2 miles per gallon of gasoline. Express this in km per liter.

$$\frac{31.2 \text{ mi}}{\text{gal}} \rightarrow \frac{\text{km}}{\text{L}}$$

1 km	1 m	12 in	5280 ft	31.2 mi	1 gal	1.06 qt	= 13.3 km/L or $1.33 \times 10^1 \text{ km/L}$
1000 m	39.37 in	1 ft	1 mi	1 gal	4 qt	1 L	

c. Water from a hose is flowing at a rate of 1 liter every two minutes. What is this rate in gallons per hour?

$$\frac{1 \text{ L}}{2 \text{ min}} \rightarrow \frac{\text{gal}}{\text{hr}}$$

1 gal	1.06 qt	1 L	60 min	= 8 gal/hr
4 qt	1 L	2 min	1 hr	

d. A bulldozer can push 12.4 tons of soil in five minutes. What is this rate in pounds per hour?

$$\frac{12.4 \text{ tons}}{5 \text{ min}} \rightarrow \frac{\text{lbs}}{\text{hr}}$$

2000 lbs	12.4 ton	60 min	= 298,000 lbs/hr or $2.98 \times 10^5 \text{ lbs/hr}$
1 ton	5 min	1 hr	

e. How long have you been alive in seconds? (Convert age in years to seconds.)

60 sec	60 min	24 hrs	365 day	<input type="text"/> yrs	=
1 min	1 hr	1 day	1 year		