

## Volume, Capacity, and Mass (Section 11.5 Continued)

### Units of Volume

If  $1dm = 10cm$  then  $1dm^3 = \underline{\hspace{2cm}}cm^3$ . Why?

Dimensional Analysis:

**Examples:** Convert each of the following.

a.  $4dm^3 = \underline{\hspace{2cm}}mm^3$

b.  $14000cm^3 = \underline{\hspace{2cm}}m^3$

### The English System

If  $1ft = 12in$  then  $1ft^3 = \underline{\hspace{2cm}}in^3$ . Why?

Dimensional Analysis:

**Examples:** Convert the following.

a.  $45yd^3 = \underline{\hspace{2cm}}ft^3$

## Units of Capacity

Liters:

### Common Units:

$$1 \text{ Milliliter} = \underline{\hspace{2cm}} \text{cm}^3$$

$$1 \text{ Liter} = \underline{\hspace{2cm}} \text{dm}^3$$

### Relationship to English System:

$$1 \text{ Liter} = \underline{\hspace{2cm}} \text{Gallons}$$

**Examples:** Convert each of the following.

a.  $50 \text{mL} = \underline{\hspace{2cm}} \text{L}$

b.  $12 \text{mL} = \underline{\hspace{2cm}} \text{m}^3$

c.  $4 \text{m}^3 = \underline{\hspace{2cm}} \text{L}$

## The English System

### Common Units:

1 Gallon = \_\_\_\_\_ Quarts = \_\_\_\_\_ Pints = \_\_\_\_\_ Cups

1 Quart = \_\_\_\_\_ Pints

1 Pint = \_\_\_\_\_ Cups

### Relationship to cubic units:

1 Gallon = \_\_\_\_\_  $in^3$

**Examples:** Convert each of the following.

a. 50 cups = \_\_\_\_\_ quarts

b. 10 quarts = \_\_\_\_\_ pints

c. 24 gal = \_\_\_\_\_  $ft^3$

## Units of Mass

Grams:

### Common Units:

1 gram = \_\_\_\_\_ mL of water = \_\_\_\_\_  $cm^3$  of water

Approximation:

1 kilogram = \_\_\_\_\_ L of water = \_\_\_\_\_  $dm^3$  of water

Approximation:

1 metric ton = \_\_\_\_\_ kg

Approximation:

### Relationship to English System:

#### The English System:

**Examples:** Convert each of the following.

a.  $200mg = \text{_____}g$

b.  $20oz = \text{_____}lbs$

**Examples:** Fill in the appropriate unit of measure.

- a. Jessica filled her gas tank with 80 \_\_\_\_\_.
  
- b. Bob has a mass of 82 \_\_\_\_\_.
  
- c. One nickel has a mass of 5 \_\_\_\_\_.
  
- d. A car has a mass of 1.5 \_\_\_\_\_.
  
- e. The amount of coffee in a cup is 200 \_\_\_\_\_.

Homework: