

**Chemistry Unit 1 Worksheet**  
**Factor Label Conversions**

Period: \_\_\_\_\_ Name: \_\_\_\_\_

Convert each of the measurements given to the new unit stated using the factor label method (dimensional analysis). Show all work including rewriting the given.

**Conversion Factors**

1 lb = 4.45 Newtons    1 lb = 0.454 kg    1 oz = 29.6 ml    1 in = 2.54 cm    1 mile = 5280 ft

1 mi = 1609 m

← Infinite SF

One step conversions:

Answer before rounding    Rounded for SF

1. 26 cm to m. <sup>From Table C</sup>  
 $(10^{-2} \text{ m} = 1 \text{ cm})$

0.26 m    0.26 m

$$26 \text{ cm} \left( \frac{10^{-2} \text{ m}}{1 \text{ cm}} \right)$$

2. 4 hr to min

240 min    240 min

$$4 \text{ hr} \left( \frac{60 \text{ min}}{1 \text{ hr}} \right)$$

3. 3.25 km to m

3250 m    3250 m

$$3.25 \text{ km} \left( \frac{10^3 \text{ m}}{1 \text{ km}} \right)$$

4. 5 ft to in

60 in    60 in

$$5 \text{ ft} \left( \frac{12 \text{ in}}{1 \text{ ft}} \right)$$

5. 130 lb to N (Newton)

578.5 N    580 N

$$130 \text{ lb} \left( \frac{4.45 \text{ N}}{1 \text{ lb}} \right)$$

6. 130 lb to kg

59.02 kg    59 kg

$$130 \text{ lb} \left( \frac{0.454 \text{ kg}}{1 \text{ lb}} \right)$$

7. 44 fl. oz. to mL

1302.4 mL    1300 mL

$$44 \text{ oz} \left( \frac{29.6 \text{ mL}}{1 \text{ oz}} \right)$$

Multi-step conversions:

1. 26 cm to ft.

$$0.853 \text{ ft} \quad \underline{0.85 \text{ ft}}$$

$$26 \text{ cm} \left( \frac{1 \text{ in}}{2.54 \text{ cm}} \right) \left( \frac{1 \text{ ft}}{12 \text{ in}} \right)$$

$$26 \text{ cm} \left( \frac{1 \text{ in}}{2.54 \text{ cm}} \right) = 10.23622 \text{ in} \left( \frac{1 \text{ ft}}{12 \text{ in}} \right) = 0.853 \text{ ft}$$

2. 16 lb to g

$$7264 \text{ g} \quad \underline{7300 \text{ g}}$$

$$16 \text{ lb} \left( \frac{0.454 \text{ kg}}{1 \text{ lb}} \right) \left( \frac{10^3 \text{ g}}{1 \text{ kg}} \right)$$

3. 1 yr to s

$$3.15 \times 10^7 \text{ s} \quad \underline{3 \times 10^7 \text{ s}}$$

$$1 \text{ yr} \left( \frac{365 \text{ days}}{1 \text{ yr}} \right) \left( \frac{24 \text{ hours}}{1 \text{ day}} \right) \left( \frac{60 \text{ min}}{1 \text{ hour}} \right) \left( \frac{60 \text{ sec}}{1 \text{ min}} \right)$$

$$0.62 \text{ mi} = 1 \text{ km}$$

4. 3.5 mi to km

$$5.6315 \text{ km} \quad \underline{5.6 \text{ km}}$$

$$3.5 \text{ mi} \left( \frac{1609 \text{ m}}{1 \text{ mi}} \right) \left( \frac{1 \text{ km}}{10^3 \text{ m}} \right)$$