

**WS 2.2 Unit Conversions and the Unit Factor Method**

**Name:** \_\_\_\_\_ *p.* \_\_\_\_\_

1 inch = 2.54 cm (exactly)

1 pound = 453.6 grams

1 hour = 60 minutes (exactly)

1 foot = 12 inches (exactly)

1 mL = 1 cm<sup>3</sup> (exactly)

1 minute = 60 seconds (exactly)

1 mile = 5280. feet

1 mile = 1.61 km

**YOU MUST SHOW ALL UNIT FACTORS TO RECEIVE CREDIT!!!**

**1. Make the following conversions!**

a. 3.2 feet to centimeters

b. 4530 inches to miles

c. 26.2 miles to kilometers

d. 10.0 kilometers to miles

e. 3.50 hours to seconds

**2a.** A spider is moving at 48 feet per hour (ft/hr). Convert this speed to units of centimeters per min (cm/min).

b. A baby whale can gain mass at a rate of 90. kilograms per day! Convert this into pounds per week.

c. A sloth can move at a top speed of about 78 inches per minute. Convert this speed to miles per hour.

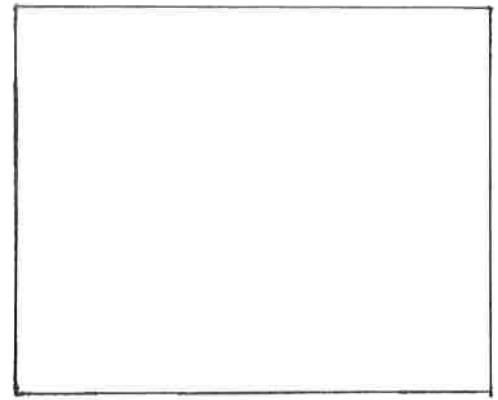
d. A cat is eating 64 grams of food per day. Convert 64 g/day into pounds per year (lbs/yr).

**3. Make the following conversions:**

a. 47000 grams into pounds

b. 1450 seconds into days

4. Consider the following rectangle, which has a length of 1.32 feet and a width of 1.11 feet.



a. Calculate the area of the rectangle, in square feet.

b. Convert the length and width to inches.

(1.32 feet)(-----) =

(1.11 feet)(-----) =

c. Use your answers to (b) to calculate the area of the rectangle in square inches.

5a. How many square inches are in one square foot? \_\_\_\_\_

b. How many cubic inches are in one cubic foot? \_\_\_\_\_

c. Convert  $1.0 \text{ ft}^3$  into  $\text{cm}^3$ .

d. Convert an area of 444 square centimeters into square feet.

6. A car is moving at a speed of 126 feet per second. Convert this speed to miles per hour.

7. Convert a volume of 1130 cubic inches ( $\text{in}^3$ ) into cubic feet ( $\text{ft}^3$ )

8. Convert an area of 0.800 square miles ( $\text{mi}^2$ ) into square inches