Name: _____   Section: _____

More Dimensional Analysis Practice Problems

1. Simplifying the fractions by canceling out the units is an important part of the dimensional analysis process because it acts as a way to check whether your fractions are set up correctly. Simplify the following by canceling out the like terms and by multiplying what's left. What are the resulting units?

a. $\dfrac{(mile)}{(second)} \dfrac{(hour)}{(mile)} =$

b. $\dfrac{(feet)}{(hour)} \dfrac{(hour)}{(inch)} \dfrac{(gram)}{(feet)} =$

c. $\dfrac{(gram)}{(inch)} \dfrac{(milliliter)}{(gram)} \dfrac{(ounce)}{(liter)} \dfrac{(liter)}{(milliliter)} =$

d. $\dfrac{(kilometer)}{(meter)} \dfrac{(inch)}{(feet)} \dfrac{(mile)}{(hour)} \dfrac{(feet)}{(mile)} \dfrac{(meter)}{(centimeter)} \dfrac{(centimeter)}{(inch)} =$

2. Convert 75 centimeters to inches *(2.54 cm = 1 in.)*

3. Five pounds is equal to how many grams? *(454 g = 1 lb.)*

4. Convert 175 liters to barrels *(1 gallon = 3.78 L) (1 barrel = 42 gallons)*

5. How many centimeters are in 5 feet, 10 inches? *(12 in. = 1 foot) (1 in. = 2.54 cm)*

6. How many seconds are in two weeks?

7. After running the mile for gym, Justin drank a one liter bottle of water while Peter drank a container containing two pints of water. How many gallons did they drink if you combine the amounts of water they both consumed?
   (1 L = 1.06 quarts) (1 gallon = 3.78 L) (1 gallon = 4 quarts) (1 quart = 2 pints)

8. Jules Verne wrote a book called *Twenty Thousand Leagues Under the Sea*. Convert 20,000 leagues to fathoms.

12 inches = 1 foot
3 feet = 1 yard
1 fathom = 2 yards
1 statute mile = 5,280 feet
1 nautical mile = 6,080 feet
1 league = 3 nautical miles

9. Given the following equivalents, make the following conversion

1 fizzle = ? frizzles

4 swizzles = 5 twizzles
1 fizzle = 3 drizzles
3 twizzles = 18 sizzles
1 swizzle = 20 frizzles
10 drizzles = 4 sizzles

10. Steven lives in Quebec and decided to take a trip into the United States during a long weekend. What is the maximum speed he can drive his Canadian made car (that has units of kilometer per hour) if the speed limit on the major roadways is 65 miles per hour? <u>Hint</u>: your starting point has a unit on top and on the bottom.

(1 mile = 1.61 km)

11. Melissa learned that a space shuttle can reach a speed of 17,500 miles/hour in about nine minutes. How many feet/second is this equal to? <u>Hint</u>: your starting point has a unit on top and on the bottom.

(1 mile = 5,280 feet)