Dimensional Analysis Worksheet 1

Complete with the correct conversions (the first one is done for you)

$1 \text{ Mm} = 1 \times 10^6 \text{ m}$ _____ $= 1 \times 10^{-12} \text{ g}$

$1 \text{ mL} = $ _____ $1 \text{ cg} = $ _____

_____ $= 1 \times 10^3 \text{ g}$ $1 \text{ dm} = $ _____

$1 \text{ μL} = $ _____ $1 \text{ daL} = $ _____

_____ $= 1 \times 10^{-9} \text{ m}$ _____ $= 1 \times 10^2 \text{ L}$

Set up these conversions and calculate the answer. Remember to focus on your units and make sure they cancel out! The first one has been done as an example.

(x) nm = 5.64 x 10⁻⁶ m |1 nm = 5.64 x 10³ nm
                               |1 x 10⁻⁹ m

(x) L = 1024 mL
1.024 L

(x) kg = 4.32 x 10⁴ ng
4.32x10⁻⁸ kg

(x) cm = 1.32 x 10⁷ Mm
1.32x10¹⁵ cm

(x) Gg = 9.543 x 10¹⁸ pg
9.453x10⁻³ Gg

(x) μm = 732 dm
7.32x10⁷ μm

(x) kL = 0.056 dL
5.6x10⁻⁶ kL

Helpful conversion factors:

12 donuts = 1 dozen donuts	60 minutes = 1 hour
365 days = 1 year	1 minute = 60 seconds
16 ounces = 1 pound	1 mile = 5280 feet
2000 pounds = 1 ton	1 in = 2.54 cm
12 inches = 1 foot	1 lb = 454 g
24 hours = 1 day	

Convert the following (show your work and use correct sig figs!):

How many miles are in 795690 inches?

12.558 mi

How many grams are in 2.7 x 10^3 ounces?

7.7×10^4 g or 77 000 g

Calculate the number of raspberry-filled donuts in 17.6 dozen donuts.

211 donuts

Brian the Air Force pilot is 1.90 meters tall. How tall is he in inches?

7.48×10^1 in or 74.8 in

Cheryl (Brian's sister) is 5.0 feet tall. How tall is she in cm?

150 cm

This class period is 1.5 hours long. How long is this in seconds? You **must** set this problem up with dimensional analysis.

5400 s

A 2018 Ford Fiesta weights approximately 1.35 tons. How much does this car weigh in ounces?

4.32×10^4 oz

Create 2 of your own conversion problems.

Write your word problems. Don't leave this blank!

Ok, now solve them.

Solve these!