

Dimensional Analysis Wkst #2

YOU MUST SHOW ALL YOUR WORK! NO WORK = NO CREDIT

Useful conversions:

$$1 \text{ in} = 2.54 \text{ cm}$$

$$4 \text{ qts} = 1 \text{ gal}$$

$$1 \text{ m} = 1.094 \text{ yds}$$

$$1 \text{ L} = 1.06 \text{ qts}$$

$$1 \text{ lb} = 453.6 \text{ g}$$

$$1760 \text{ yds} = 1 \text{ mile}$$

Write all your metric conversions here (include units on right side):

$$\frac{1}{\text{ML}} \text{ Gg} = \frac{1 \times 10^9 \text{ g}}{\text{ML}}$$

$$\text{hm} = \underline{\hspace{2cm}}$$

$$\text{daL} = \underline{\hspace{2cm}}$$

$$\text{dg} = \underline{\hspace{2cm}}$$

$$\text{cm} = \underline{\hspace{2cm}}$$

$$\text{mm} = \underline{\hspace{2cm}}$$

$$\mu\text{g} = \underline{\hspace{2cm}}$$

$$\text{nL} = \underline{\hspace{2cm}}$$

$$\text{pm} = \underline{\hspace{2cm}}$$

1. Dr. MD's intestine is 7.5×10^3 mm long.
 - a. How long is this in cm?

 - b. What is the intestine's length in inches?

2. Nurse RN's intestine is 6.4×10^3 mm long. How long is this in inches?

3. Complete the following metric unit conversion problems:
 - a. (x) km = 3.54×10^4 cm

 - b. (x) pg = 5.87×10^{-3} dg

 - c. (x) mL = 134 daL

4. A 2008 Corvette gets 15 miles/gal in the city. What is this mileage in km/L?

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5. The heaviest man weighted 714 lbs. What was his mass in kg (before he died of heart failure, of course)?

6. A marathon is 26.2 miles long. How long is this in km?

7. Light travels at 3.0×10^8 m/s. How many miles/hour is this?

8. Jacques, the speeding Canadian, gets pulled over in the US. His speedometer reads 120 km/hour.
 - a. How fast is he going in miles/hour?

 - b. How fast is he going in m/sec?

9. Convert 66 ft/second to miles/hour.

10. Light travels at a speed of 3.0×10^8 m/s. If the sun is 1.5×10^8 km away, how many years does it take for sunlight to reach earth?

11. If $1 \text{ cm}^3 = 1 \text{ mL}$, how many L are in $4.6 \times 10^{-2} \text{ cm}^3$?

12. The density of water is 1.00 g/cm^3 . Convert this to kg/L.

13. Using dimensional analysis, calculate the volume in L of 5.32×10^{-2} kg of gold (the density of gold is 19.3 g/cm^3).