Math warmup: copy and solve:

1) $7.6 \times \left(\frac{3}{0.0104}\right) = 2192$

2) $15 \times \left(\frac{6.44}{7.6}\right) x \left(\frac{2}{0.3}\right) = 84.74$

<u>Purpose</u>: Begin using "ONE" to multiply units we don't want and turn them into units we want.

<u>Rule</u>: we can always multiply by one. In chemistry, ONE can be any ratio where the top and bottom refer to identical bunches of stuff.

1) 10 fingers is 2 hands so you can say this is ONE: $\left(\frac{5 \text{ fingers}}{1 \text{ hands}}\right)$ $\left(\frac{10 \text{ fingers}}{2 \text{ hands}}\right)$

2

3) Problem: If 3 softball teams at a small college needed to switch in the winter to make basketball teams, how many could they make?

$$3 \text{ softball teams} \times \left(\frac{9 \text{ people}}{1 \text{ softball team}}\right) \times \left(\frac{1 \text{ basketball team}}{5 \text{ people}}\right) = 5.4 \text{ basketball teams}$$

3

4) Problem: If you had 40.5 grams of tin, how many milliliters would you have?

$$40.5 \text{ grams tin} \times \left(\frac{1 \text{ mL}}{7.31 \text{ grams tin}}\right) = 5.54 \text{ mL}$$

Element	density [g/mL]
Aluminum	2.70
Titanium	4.54
Zinc	7.13
Tin	7.31
Iron	7.87
Nickel	8.90
Copper	8.96

← From worksheet

What is one?

EHS CA3MIS+RY

Mr. Genest

Name ANSWERS

Date _____

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I. Equalities

a. 12 EGGS = 1 DOZENS
b. 2 EYES = 1 HUMAN
c. 8 LEGS = 1 SPIDER
d. 1000 mL = 1 liters
e. 1 kilometers = 1,000,000 millimeters
f. 100 yards = 1 football field

II. Rewrite the six equalities from above as 'DISGUISED ONES' there are two versions of each, one an upside down version of the other.

a. Two ways to say 'ONE' are $\left(\frac{12 \text{ eggs}}{1 \text{ dozen}}\right)$ or $\left(\frac{1 \text{ dozen}}{12 \text{ eggs}}\right)$

b. Two ways to say 'ONE' are $\left(\frac{2 \text{ eyes}}{1 \text{ human}}\right)$ or $\left(\frac{1 \text{ human}}{2 \text{ eyes}}\right)$

c. Two ways to say 'ONE' are $\left(\frac{8 \text{ legs}}{1 \text{ spider}}\right)$ or $\left(\frac{1 \text{ spider}}{8 \text{ legs}}\right)$

d. Two ways to say 'ONE' are $\left(\frac{1000 \text{ mL}}{1 \text{ L}}\right)$ or $\left(\frac{1 \text{ L}}{1000 \text{ mL}}\right)$

e. Two ways to say 'ONE' are $\left(\frac{1 \text{ km}}{1,000,000 \text{ mm}}\right)$ or $\left(\frac{1,000,000 \text{ mm}}{1 \text{ km}}\right)$

f. Two ways to say 'ONE' are $\left(\frac{100 \text{ yards}}{1 \text{ football field}}\right)$ or $\left(\frac{1 \text{ football field}}{100 \text{ yards}}\right)$

III. Insert one of your DISGUISED ONES from above into each equation below .

a. 225 eggs $\times \left(\frac{1 \text{ dozen}}{12 \text{ eggs}}\right) =$

b. 13 humans $\times \left(\frac{2 \text{ eyes}}{1 \text{ human}}\right) =$

c. 9 ~~spiders~~ legs $\times \left(\frac{1 \text{ spider}}{8 \text{ legs}}\right) = 1.125$ spiders

d. 1.65 liters $\times \left(\frac{1000 \text{ mL}}{1 \text{ L}}\right) =$

e. 67,000,000 mm $\times \left(\frac{1 \text{ km}}{1,000,000 \text{ mm}}\right) =$

f. 5.5 football fields $\times \left(\frac{100 \text{ yards}}{1 \text{ field}}\right) =$