NAME
CHEMISTRY
English System Conversions

ENGLISH SYSTEM
Convert the following values

1. 125 ft → _____ in $125\text{ ft} \left| \frac{12\text{ in}}{1\text{ ft}} \right. = 1500\text{ in}$

2. .25 miles → _____ yards $0.25\text{ mi} \left| \frac{1760\text{ yds}}{1\text{ mi}} \right. = 440\text{ yds}$

3. 126 miles → _____ inches $126\text{ mi} \left| \frac{5280\text{ ft}}{1\text{ mi}} \right| \frac{12\text{ in}}{1\text{ ft}} = 7{,}980{,}000\text{ in}$

4. 2 gallons → _____ pints $2\text{ gal} \left| \frac{4\text{ qt}}{1\text{ gal}} \right| \frac{2\text{ pt}}{1\text{ qt}} = 16\text{ pts}$

5. 27 quarts → _____ teaspoons $27\text{ qt} \left| \frac{2\text{ pt}}{1\text{ qt}} \right| \frac{2\text{ cup}}{1\text{ pt}} \left| \frac{16\text{ T}}{1\text{ c.}} \right| \frac{3\text{ t.}}{1\text{ T.}} = 5184\text{ t.}$

6. 2 pints → _____ gallons $2\text{ pt} \left| \frac{1\text{ qt}}{2\text{ pt}} \right| \frac{1\text{ gal}}{4\text{ qt}} = 0.25\text{ gal}$

7. 250 pounds → _____ tons $250\text{ pounds} \left| \frac{1\text{ ton}}{2000\text{ lbs}} \right. = 0.125\text{ ton}$

8. 1000 ounces → _____ lbs $1000\text{ oz} \left| \frac{1\text{ lb}}{16\text{ oz}} \right. = 62.5\text{ lbs}$

9. 250 tons → _____ ounces $250\text{ tons} \left| \frac{2000\text{ lbs}}{1\text{ ton}} \right| \frac{16\text{ oz}}{1\text{ lb}} = 8{,}000{,}000\text{ oz}$

10. 150 lbs → _____ ounces $150\text{ lbs} \left| \frac{16\text{ oz}}{1\text{ lbs}} \right. = 2400\text{ oz}$

NAME
CHEMISTRY
English Metric Conversions

CONVERT THE FOLLOWING

1. 125 m → _____ cm $\quad \frac{125\text{m}}{} \left| \frac{100\text{cm}}{1\text{m}} \right. = 12{,}500\text{cm}$

2. 0.26 mm → _____ Km $\quad \frac{0.26\text{mm}}{} \left| \frac{1\text{ Km}}{1\times10^{6}\text{mm}} \right. = 2.5\times10^{-7}\text{ Km}$

3. 7.5 g → _____ mg $\quad \frac{7.5\text{g}}{} \left| \frac{1000\text{mg}}{1\text{ g}} \right. = 7500\text{mg}$

4. 25 dam → _____ dm $\quad \frac{25\text{dam}}{} \left| \frac{100\text{dm}}{1\text{ dam}} \right. = 2500\text{dm}$

5. 1,000,000mL → _____ KL $\quad \frac{1{,}000{,}000\text{mL}}{} \left| \frac{1\text{ KL}}{1\times10^{6}\text{ mL}} \right. = 1\text{ KL}$

Metric English Conversions

6. What are the bridges between the English and Metric world with respect to volume, mass, and length

1 in = 2.54 cm (distance) $\quad$ 1 qt = 0.946 L (volume) $\quad$ 2.2 lb = 1 kg (mass)

7. 12 ft → _____ m $\quad \frac{12\text{ ft}}{} \left| \frac{12\text{ in}}{1\text{ ft}} \right. \left| \frac{2.54\text{cm}}{1\text{ in}} \right. \left| \frac{1\text{ m}}{100\text{ cm}} \right. = 3.6576\text{m}$

8. 1 ft → _____ Km $\quad \frac{1\text{ ft}}{} \left| \frac{12\text{in}}{1\text{f}} \right. \left| \frac{2.54\text{cm}}{1\text{ in}} \right. \left| \frac{1\text{ Km}}{10^{5}\text{cm}} \right. = 0.0003048\text{ KM}$

9. 15mg → _____ lbs $\quad \frac{15\text{ mg}}{} \left| \frac{\text{g}}{1000\text{mg}} \right. \left| \frac{\text{Kg}}{1000\text{g}} \right. \left| \frac{2.2\text{lb}}{1\text{kg}} \right. = 0.000033\text{ lb}$

10. 25 L → _____ tsp $\quad \frac{25\text{L}}{} \left| \frac{1\text{ qt}}{0.946\text{L}} \right. \left| \frac{2\text{pt}}{1\text{qt}} \right. \left| \frac{2\text{c}}{1\text{pt}} \right. \left| \frac{16\text{T}}{1\text{c}} \right. \left| \frac{3\text{tsp}}{1\text{T}} \right. = 2033\text{ tsp}$

11. 1.5×10^{5} cups → _____ Gallons $\quad \frac{1.5\times10^{5}\text{cups}}{} \left| \frac{1\text{pt}}{2\text{c}} \right. \left| \frac{1\text{qt}}{2\text{pt}} \right. \left| \frac{1\text{gal}}{4\text{qt}} \right. = 9{,}375\text{gal}$

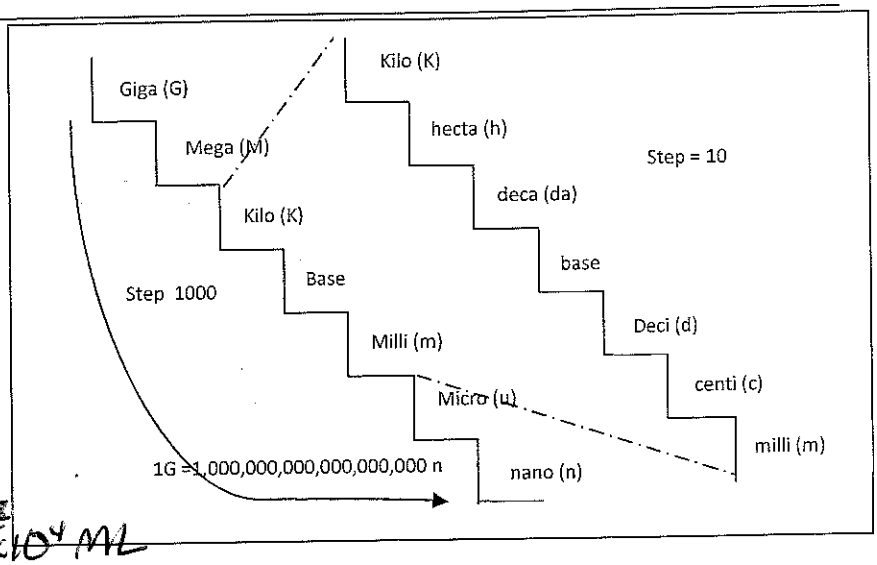
12. 15 mL → _____ Kg $\quad \frac{15\text{mL}}{}$

cannot do this 2 diff base units → volume (mL) & mass (Kg)

Name
Chemistry
Big Metric

The chart to the right shows both the overview and closer look at the metric system.

All answers must be in Scientific Notation



1. 200m = mm

$200\,m \left| \frac{1000\,mm}{1\,m} \right. = 2 \times 10^{5}\,mm$

2. 10 GL = ML

$10\,GL \left| \frac{1000\,ML}{1\,GL} \right. = 1 \times 10^{4}\,ML$

3. 259 Mg = mg

$259\,Mg \left| \frac{10^{9}\,mg}{1\,Mg} \right. = 2.59 \times 10^{11}\,mg$

4. 200,000 nm = mm

$200{,}000\,nm \left| \frac{1\,mm}{10^{6}\,nm} \right. = 0.2\,mm \Rightarrow 2 \times 10^{-1}\,mm$

5. 100,000 um = nm

$100{,}000\,um \left| \frac{1000\,nm}{1\,um} \right. = 1 \times 10^{8}\,nm$

6. 191 mm = cm

$191\,mm \left| \frac{1\,cm}{10\,mm} \right. = 19.1\,cm \Rightarrow 1.91 \times 10^{1}\,cm$

7. 2050ML = GL

$2050\,ML \left| \frac{1\,GL}{1000\,ML} \right. = 2.050\,GL \Rightarrow 2.05 \times 10^{0}\,GL$

8. 200,000 nm = mm

$200{,}000\,nm \left| \frac{1\,mm}{1 \times 10^{6}\,nm} \right. = 0.2\,mm \Rightarrow 2.0 \times 10^{-1}\,mm$

9. 125,000,000,000 Gg = mg

$125{,}000{,}000{,}000\,Gg \left| \frac{1 \times 10^{23}\,mg}{1\,Gg} \right. = 1.25 \times 10^{23}\,mg$

10. 5000. ug = Gg

$5000\,ug \left| \frac{1\,Gg}{1 \times 10^{15}\,ug} \right. = 5 \times 10^{-12}\,Gg$

Name

Chemical Relationships

$2H_2 + 1O_2 \rightarrow 2H_2O$

Determine the quantities produced or consumed. Show all work. Follow significant figures.

If 200.0 H_2 are consumed,

1. How many O_2 are consumed? $200\ H_2 \mid \frac{1\ O_2}{2\ H_2} = 100\ O_2$
2. How many H_2O are ~~consumed~~ produced? $200\ H_2 \mid \frac{2\ H_2O}{2\ H_2} = 200\ H_2O$

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

If a person is producing CO_2 at a rate of 2.50E5 molecules per second:

3. What is the rate the O_2 is being consumed? $2.50\times10^5\ CO_2 \mid \frac{2\ O_2}{1\ CO_2} =$
4. What is the rate the water is being produced? $2.50\times10^5\ CO_2 \mid \frac{2\ H_2O}{1\ CO_2} =$

Need to Balance! → $Cu + AgNO_3 \rightarrow Cu(NO_3)_2 + Ag$

$Cu + 2AgNO_3 \rightarrow Cu(NO_3)_2 + 2Ag$

After a reaction has completed, 25,000. Ag atoms were produced,

5. How many $AgNO_3$ units must have been present? $25{,}000\ Ag \mid \frac{2\ AgNO_3}{2\ Ag} = 25{,}000\ AgNO_3$
6. How many Ag atoms can you extract from the answer from #5? $25{,}000\ Ag$

$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

Note: $6CO_2$ have a mass of 264amu, 6 H_2O have a mass of 108 amu, 1 $C_6H_{12}O_6$ has a mass of 180 amu,

7. If you have 250.0 CO_2 molecules, determine how many of every other reactant and product needed or produced.
8. With the given information, how much mass does 6 O_2 contain?
9. What is the mass of 1 CO_2?
10. What is the mass of 1 H_2O?
11. Why the difference?
12. If 500.0 grams of CO_2 is reacted, how much mass (amu) of H_2O, $C_6H_{12}O_6$, O_2 are consumed or produced?