CH 105 Supplemental Instruction

Email:
Website: CH105.yolasite.com
Sessions: Monday, 1:15–2:15, EB 128
Wednesday, 3:30–4:30, EB 133
Office Hour: Thursday, 3:30–4:30, EB 242 (Academic Success Center)

1. You have 4 moles of hydrogen atoms. How many individual atoms do you have?

$$4 \text{ moles H atoms} \left(\frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ mol}}\right) = 2.408 \times 10^{24} \text{ atoms}$$

2. Find the molar mass for the following compounds:
   a. NaBr $23 + 80 = 103$ g/mol
   b. $PbSO_4$ $207 + 32 + (4 \times 16) = 303$ g/mol
   c. $Ca(OH)_2$ $40 + (2 \times 16) + (2 \times 1) = 74$ g/mol
   d. $C_6H_{12}O_6$ $(12 \times 6) + (12 \times 1) + (16 \times 6) = 180$ g/mol

3. How many moles of methane are in 30.4 grams of methane?

CH_4
$12 + (4 \times 1) = 16$ g/mol

$$30.4 \text{ g } CH_4 \left(\frac{1 \text{ mol}}{16 \text{ g}}\right) = \boxed{1.9 \text{ moles } CH_4}$$

4. How many grams of silver can be made from the reaction of 13.4g of copper with an excess of silver nitrate? Molar masses : Ag 107.9 g/mol : Cu 63.55 g/mol

$Cu + 2AgNO_3 \longrightarrow Cu(NO_3)_2 + 2Ag$ (used Cu(II) Nitrate)

$$13.4 \text{ g Cu} \left(\frac{1 \text{ mol}}{64 \text{ g}}\right)\left(\frac{2 \text{ mol Ag}}{1 \text{ mol Cu}}\right)\left(\frac{108 \text{ g}}{1 \text{ mol Ag}}\right) = \boxed{45.2 \text{ g Ag}}$$

↳ comes from coefficients in equation

4. What is the formula for percent yield? What does "limiting reactant" mean?

$$\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100$$

limiting reactant is the reactant that determines the amt. of product made. opposite of excess or unlimited.