Name Key Per ____

THE MOLE

1. Determine the molar mass of each of the following compounds. SHOW WORK!

a. CH_4 12.011 + 4(1.0079) = 16.042 g

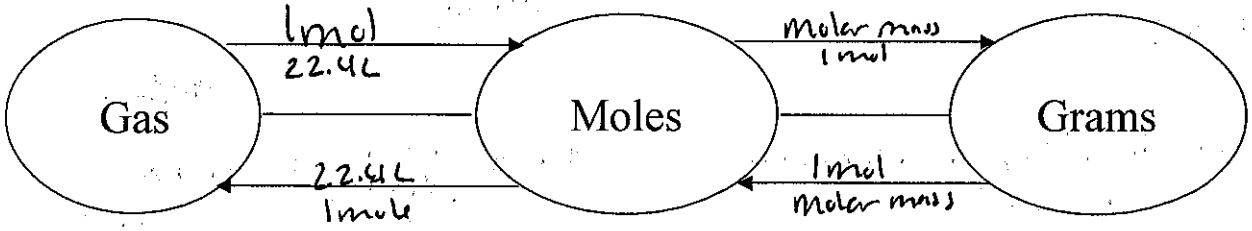
b. C_2H_2O 42.04 g

c. $NaNO_3$ 84.99 g

d. $Mg_3(PO_4)_2$ 262.86 g

e. C_6H_5OH 94.05 g

f. $LiAlH_4$ 37.93 g



How many moles are in 5 g of carbon dioxide?

$5\text{ g} \left| \frac{1\text{ mol}}{44.01\text{ g}} \right. = .11 \text{ moles } CO_2$

How many moles are in 35.9 L of fluorine?

$35.9\text{ L} \left| \frac{1\text{ mol}}{22.4\text{ L}} \right. = 1.60 \text{ mol}$

How many grams are in 2.6 moles of sodium chloride?

$2.6\text{ mols} \left| \frac{58.44\text{ g}}{1\text{ mol}} \right. = 151.95\text{ g NaCl}$

How much mass is 34.6 L of C_3H_8?

$34.6\text{ L} \left| \frac{1\text{ mol}}{22.4\text{ L}} \right| \frac{44.10\text{ g}}{1\text{ mol}} = 68.11\text{ g } C_3H_8$

How many grams are in 24.3 moles of sodium nitrate?

$24.3\text{ mols} \left| \frac{84.99\text{ g}}{1\text{ mol}} \right. = 2065.26\text{ g } NaNO_3$

How much gas (in liters) are in 10.5 grams of argon?

$10.5\text{ g} \left| \frac{1\text{ mol}}{39.948\text{ g}} \right| \frac{22.4\text{ L}}{1\text{ mol}} = 5.89\text{ L Ar}$

How much gas is in 7.8 moles of C_2H_5OH?

$7.8\text{ mols} \left| \frac{22.4\text{ L}}{1\text{ mol}} \right. = 174.72\text{ L } C_2H_5OH$

Name _____ Per _____

MORE MOLE CONVERSIONS

1. How many moles are there in 35.5 g H_2CO_3?

$$35.5\text{g} \left| \frac{1\text{mol}}{50.06\text{g}} \right. = .71\text{ mol } H_2CO_3$$

$2(1.0079)$
12.011
$+3(15.999)$
50.06 g

2. How many moles are there in 1559 g barium chloride? $BaCl_2$

$$1559\text{g} \left| \frac{1\text{mol}}{208.23\text{g}} \right. = 7.49\text{ mols } BaCl_2$$

137.327
$+2(35.453)$
208.23

3. How many grams are there in 0.0151 moles of water?

$$0.0151\text{mols} \left| \frac{18.01\text{g}}{1\text{mol}} \right. = .27\text{ g } H_2O$$

$2(1.0079)$
$+ 15.999$
18.01

4. How many moles are in 44.8 g aluminum sulfate? $Al_2(SO_4)_3$

$$44.8\text{g} \left| \frac{1\text{mol}}{342.15\text{g}} \right. = .13\text{ mol } Al_2(SO_4)_3$$

$2(26.9815)$
$3(32.066)$
$+12(15.999)$
342.15g

5. How many grams are in 2.5 moles of sodium hydrogen carbonate? $NaHCO_3$

$$2.5\text{moles} \left| \frac{84.00\text{g}}{1\text{mol}} \right. \quad 210.01\text{g } NaHCO_3$$

22.989
1.0079
12.011
$+3(15.999)$

6. How many moles are in 1.00 g NaCl?

$$1.00\text{g} \left| \frac{1\text{mol}}{58.44\text{g}} \right. = .017\text{ mol NaCl}$$

22.989
$+ 35.453$
58.442