Quiz 4A

1. A chemical reaction that produces energy is called an (exothermic/endothermic) reaction (1 point).
2. (True/False) The SI unit of energy is the joule (1 point).
3. Answer the following questions about BaCl2 (10 points).
   1. Calculate the molar mass.

Ba: 1(137.327 g/mol) = 137.327 g/mol

Cl: 2(35.453 g/mol) = 70.906 g/mol

+ 208.233 g/mol

* 1. Calculate the percent chlorine, by mass.

* 1. Is it an ionic or covalent compound? \_\_\_\_\_ionic compound\_\_\_\_\_\_
  2. Name the compound. \_\_\_\_\_barium chloride\_\_\_\_\_\_

1. Answer the following questions about hydrazine, N2H4 (8 points).
   1. What is the empirical formula? \_\_\_\_\_\_\_\_\_NH2 \_\_\_\_\_\_\_\_\_\_\_\_\_
   2. If the molar mass of hydrazine is 32.05 g/mol, how many moles of hydrazine are in 15.8 grams of hydrazine?
   3. How many molecules of hydrazine are in 2.544 moles of hydrazine?

* 1. How many moles of hydrogen are in 1.22 moles of hydrazine?

Quiz 4B

1. Answer the following questions about SiCl4 (10 points).
   1. Calculate the molar mass.

Si: 1(28.068 g/mol) = 28.086 g/mol

Cl: 4(35.453 g/mol) = 141.813 g/mol

+ 169.898 g/mol ≈ 169.90 g/mol

* 1. Calculate the percent chlorine, by mass.
  2. Is it an ionic or covalent compound? \_\_\_\_\_covalent compound\_\_\_
  3. Name the compound. \_\_\_\_\_silicon tetrachloride\_\_\_

1. (True/False) The SI unit of energy is the Calorie (1 point).
2. A chemical reaction that absorbs energy is called an (exothermic/endothermic) reaction (1 point).
3. Answer the following questions about benzene, C6H6 (8 points).
   1. How many molecules of benzene are in 12.7 moles of benzene?

* 1. How many moles of hydrogen are in 0.6430 moles of benzene?
  2. What is the empirical formula? \_\_\_\_\_\_\_\_\_CH\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. If the molar mass of benzene is 78.11 g/mol, how many moles of benzene are in 24.3 grams of benzene?