Name: _____ Section: _____

Chapter 3 Practice Worksheet:
Formulas, Equations, and Moles: Part I

1) Balancing Equations

a. ___ N_2O_5 → ___ N_2O_4 + ___ O_2

b. ___ CO + ___ O_2 → ___ CO_2

c. ___ H_2 + ___ Br_2 → ___ HBr

d. ___ K + ___ H_2O → ___ KOH + ___ H_2

e. ___ Mg + ___ O_2 → ___ MgO

f. ___ O_3 → ___ O_2

g. ___ H_2O_2 → ___ H_2O + ___ O_2

h. ___ N_2 + ___ H_2 → ___ NH_3

i. ___ Zn + ___ AgCl → ___ $ZnCl_2$ + ___ Ag

j. ___ S_8 + ___ O_2 → ___ SO_2

k. ___ NaOH + ___ H_2SO_4 → ___ Na_2SO_4 + ___ H_2O

l. ___ Cl_2 + ___ NaI → ___ NaCl + ___ I_2

m. ___ KOH + ___ H_3PO_4 → ___ K_3PO_4 + ___ H_2O

n. ___ CH_4 + ___ Br_2 → ___ CBr_4 + ___ HBr

2) For the reaction on the right, which of the following equations **best** represents the reaction?

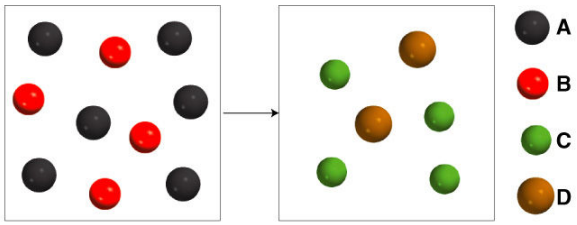
a. A + B → C + D

b. 6A + 4B → C + D

c. A + 2B → 2C + D

d. 3A + 2B → 2C + D

e. 3A + 2B → 4C + 2D



3) Calculate the molar masses of the following substances:

a. NO_2

b. C_6H_6

c. NaI

d. CS_2

e. $Ca_3(PO_4)_2$

f. Li_2CO_3

g. $CHCl_3$

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4) Stoichiometric Conversions: Complete the table below by converting between numbers of particles, moles, and grams.

Grams	**Moles**	**# Atoms, Molecules, Particles**
		6.02×10^{23} Hg atoms
	1.00 mol C atoms	
10.00 g H_2		
		2.95×10^{25} CH_4 molecules
2.00 g $Mg(NO_3)_2$		
	2.00 mol CO_2 molecules	

5) Avogadro's Number and the Mole

a. How many oxygen atoms are in one molecule of H_2O?

b. How many hydrogen atoms are in one molecule of H_2O?

c. How many molecules of H_2O are in 1.0 grams of H_2O?

d. How many H atoms are in 1.0 grams of H_2O?

e. How many atoms are in 3.14 g of copper (Cu)?

f. How many atoms are contained in 1.0 grams of CH_4?

g. How many ions are contained in 5.0612 grams of $MgCl_2$?

h. How many molecules of ethane (C_2H_6) are there in 0.334 g of ethane?

i. The density of water reaches a maximum of 1.00 g/mL at 4^oC. How many water molecules are there in 2.56 mL of water at 4^oC?