Unit #6 Practice Blackboard Insert

1. **(2 pts)** How many grams of aluminum carbonate are in 0.655 moles of the compound? **$Al_2(CO_3)_3$**

Al: 2 x 26.98 = 53.96
C: 3 x 12.01 = 36.03
O: 9 x 16.00 = 144.00
Molar Mass = 233.99 g/mole

0.655 moles x $\frac{233.99\ g}{mole}$ = 153.263 ➔ 153 g

2. **(3 pts)** Calculate the % composition of Cobalt (II) Nitrate. **$Co(NO_3)_2$**

Co: 1 x 58.93 = 58.93
N: 2 x 14.01 = 28.02
O: 6 x 16.00 = 96.00
Molar Mass = 182.95

Co: 58.93 / 182.95 x 100 = 32.21 %
N: 28.02 / 182.95 x 100 = 15.32 %
O: 96.00 / 182.95 x 100 = 52.47 %

3. **(3 pts)** What is the empirical formula of a substance that contains 4.027 grams potassium, 2.678 grams chromium, and 3.296 grams oxygen?

	Moles	Ratio	
K: 4.027 g x 1 mole / 39.10 g =	**0.1030**	**2**	**➔ K_2CrO_4**
Cr: 2.678 g x 1 mole / 52.00 g =	**0.0515**	**1**	
O: 3.296 g x 1 mole / 16.00 g =	**0.2060**	**4**	

4. **(2 pts)** Balance and classify the following equations:

$3\ NiCl_{2\ (aq)} + 2\ Na_3PO_{4\ (aq)} \rightarrow Ni_3(PO_4)_{2\ (s)} + 6\ NaCl_{\ (aq)}$ (Precipitation)

$2\ C_4H_{10\ (g)} + 13\ O_{2\ (g)} \rightarrow 8\ CO_{2\ (g)} + 10\ H_2O_{\ (g)}$ (Complete Combustion)

Extra Credit (1 pt):

Convert name to formula or visa versa … from the list of names in unit 5