

Name: _____

Stoich Review

1. Which sample contains a mole of atoms?

- A) 23 g Na
- B) 24 g C
- C) 42 g Kr
- D) 78 g K

2. What is the total mass in grams of 0.75 mole of SO₂?

- A) 16 g
- B) 24 g
- C) 32 g
- D) 48 g

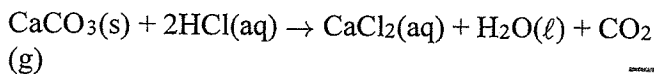
3. The empirical formula of a compound is CH₃. The molecular formula of this compound could be

- A) CH₄
- B) C₂H₄
- C) C₂H₆
- D) C₃H₆

4. What is the percent composition by mass of sulfur in the compound MgSO₄ (gram-formula mass = 120. grams per mole)?

- A) 20%
- B) 27%
- C) 46%
- D) 53%

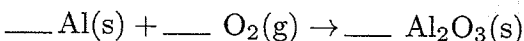
5. Given the balanced equation:



What is the total number of moles of CO₂ formed when 20. moles of HCl is completely consumed?

- A) 5.0 mol
- B) 10. mol
- C) 20. mol
- D) 40. mol

6. Given the unbalanced equation:



When this equation is correctly balanced using smallest whole numbers, what is the coefficient of O₂ (g)?

- A) 6
- B) 2
- C) 3
- D) 4

7. What is the total number of moles of sulfur atoms in 1 mole of Fe₂(SO₄)₃?

- A) 1
- B) 15
- C) 3
- D) 17

⑦

Fe	2
S	3
O	12

#1) Remember
Gram Formula Mass = Mass of 1 Mole

1 mole of Na = 23g
1 mole of Kr = 84g
1 mole of C = 12g
1 mole of K = 39g

#2) First find GFM of SO₂

S 1 x 32 = 32
O 2 x 16 = 32
64g

2) use mole calculation formula

$$0.75 \text{ mole} = \frac{x}{64} \quad x = 48g$$

#3) Empirical Formula is the reduced form. In this case CH₃ shows 1 carbon for every 3 Hydrogens

C₂H₆ has the same ratio and would be reduced to CH₃

#4) Percent Comp. Formula

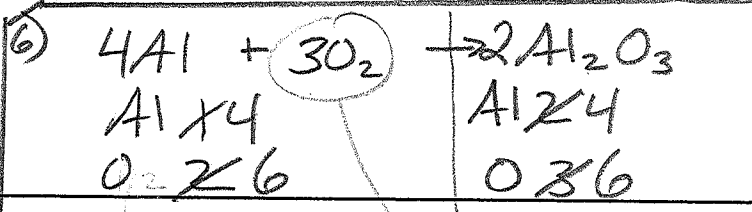
$$\% S = \frac{32}{120} \times 100$$

#5) it is a recipe!



Place what they told you in the question over the corresponding coefficient in the chemical equation.

$$\frac{20.0}{2} = \frac{x}{1} \quad x = 10.0 \text{ mol}$$



OVER

Stoich Review

8. A hydrate is a compound that includes water molecules within its crystal structure. During an experiment to determine the percent by mass of water in a hydrated crystal, a student found the mass of the hydrated crystal to be 4.10 grams. After heating to constant mass, the mass was 3.70 grams. What is the percent by mass of water in this crystal?

- A) 90% B) 11%
 C) 9.8% D) 0.40%

8) % comp formula

$$\% \text{H}_2\text{O} = \frac{\text{mass of H}_2\text{O}}{\text{whole hydrate}} \times 100$$

$$\begin{array}{r} 4.10 \text{g hydrated} \\ - 3.70 \text{g anhydrous} \\ \hline 0.40 \text{g H}_2\text{O} \end{array} \quad \rightarrow \quad \% \text{H}_2\text{O} = \frac{0.40}{4.10} \times 100 = 9.8\% \text{H}_2\text{O}$$

9. A substance has an empirical formula of CH_2 and a molar mass of 56 grams per mole. The molecular formula for this compound is

- A) CH_2 B) C_4H_6 C) C_4H_8 D) C_8H_4

9) 1) First find GFM of CH_2

$$\text{C } 1 \times 12 = 12$$

$$\text{H } 2 \times 1 = 2$$

$$\hline 14 \text{g}$$

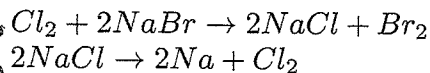
2) Then divide molar mass by 14g

$$56 / 14 = 4$$

3) Finally multiply all the subscripts by 4



10. Given the balanced equations representing two chemical reactions:



Which type of chemical reactions are represented by these equations?

- A) single replacement and decomposition
 B) single replacement and double replacement
 C) synthesis and decomposition
 D) synthesis and double replacement

10) Must memorize the 5 types of Reactions! Look in your notes

one element replaces another \Rightarrow Single Replacement

One compound breaks up into more than 1 substance \Rightarrow decomposition