Moles/ Stoichiometry Test Review

Old Stuff

Write the formula for the following compounds.

1. Chromium (III) nitrate
2. Hydrosulfuric acid
3. Lithium oxide
4. Carbonic acid
5. Sulfur trioxide
6. Sodium sulfide
7. Hydrochloric acid
8. Gold (III) sulfate

Moles

Use your mole map to assist you in solving these problems.

1. How many moles are in 8.88 × 1025 molecules of H2O?
2. What is the mass of 77.77 moles of HNO3?
3. How many moles are in 555.55 L of N2O gas at STP?
4. How many molecules are in 44.44 grams of Cr2S3?
5. What is the mass, in grams, of 3.333 L of Cl2 gas at STP?
6. What is the % of each element in AgPO4?

Stoichiometry

Solve the following stoichiometry problems. If you show all your work, including units and formulas, it is harder to get confused when solving problems. All questions will use the equation below:

**NaOH + P4 + H2O ---> NaH2PO2 + PH3**

1. Balance the equation.
2. How many moles of phosphorous trihydride are produced from the reaction of 80.00g of sodium hydroxide with excess phosphorous and water?
3. How many moles of water are needed to react with 61.94 grams of phosphorous (P4)?
4. What is the mass, in grams, of NaH2PO2 produced from the reaction of 120.0 grams of sodium hydroxide with excess phosphorous and water?
5. Define a limiting reactant. What does a limiting reactant do?
6. Define excess reactant.
7. Many toothpastes contain the following ingredients listed below. If you own a toothpaste company and have the following amounts of each ingredient, how many tubes of toothpaste can you make in your factory? What is the limiting reactant and how do you know? How much of each excess ingredient do you have left over? You can answer in grams.

**Toothpaste ingredients**

**(1 tube)**

62.5 grams of water

125 grams of abrasives (aluminum hydroxide or calcium carbonate)

2.50 grams of fluoride (sodium fluoride)

5.00 grams of foaming agent (sodium lauryl sulfate)

1.75 grams of mint flavoring

**Ingredients available in your factory**

70,547,98 pounds of water (32,000,000g)

143, 300.6 pounds of abrasives (65,000,000g)

2,755,7 pounds of fluoride (1,250,000g)

5,732.0 pounds of foaming agent (2,600,000g)

440.9 pounds of mint flavoring (200,000g)