1. Show how to set up a stoichiometry problem with one unknown and one given.

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1. Show how to set up a Limiting Reactant Stoich. Problem.

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1. Show how to set up a Mole to Mole Ratio
2. What is the formula for Percent Yield?
3. What is the formula for Percent Error?
4. Fill out the Mole conversions.
5. What are the units for the following:

|  |  |
| --- | --- |
| Mass |  |
| Volume |  |
| Energy |  |

1. C3H8 + 5O2 🡪 3CO2 + 4H2O, if 5.75L of oxygen are consumed in the above reaction, how many L of carbon dioxide are produced?
2. In the decomposition of baking soda, NaHCO3(s) + 1,800 kJ🡪CO2(g) + NaOH(s), how much energy is required if there is 9.5 X 10-3 moles of NaOH produced?
3. BALANCE THE FOLLOWING AND SOLVE:

 \_\_\_\_\_ Cu(s) + \_\_\_\_\_ AgNO3(aq) 🡪 \_\_\_\_\_ Cu(NO3)2(aq) + \_\_\_\_\_ Ag(s) If 0.0266 moles of copper and 0.75 moles of silver nitrate are available to react, how many grams of silver are produced?

1. 4FeCr2O7 + 8K2CO3 + O2  2Fe2O3 + 8K2CrO4 + 8CO2 How many grams of FeCr2O7 are required to produce 3.44 g of CO2?
2. In the following reaction, 2H2(g) + O2(g) 🡪 2H2O(g), how many moles of oxygen would be required to produce 5.76 moles of water?
3. Cr2O3 + 3C → 2Cr + 3CO

If the experimental yield obtained was 18.45 g of Cr, but you should have produced 535 g of Cr, what is the percent yield?

1. How many moles are there in 442.9 grams of CCl4?
2. Determine the mass of barium bromate that can be prepared from 3.32 g of Ba(OH)2 given this unbalanced equation: \_\_\_HBrO3 + \_\_\_Ba(OH)2  \_\_\_Ba(BrO3)2 + \_\_\_H2O
3. BALANCE THE FOLLOWING: \_\_\_\_\_ CaO(s) + \_\_\_\_ H2O(l) 🡪 \_\_\_\_\_ Ca(OH)2(aq)
4. How many grams of calcium hydroxide will be formed in this reaction when 1.02 g of calcium oxide and 0.304 g of water are available to react?
5. The body breaks down sugar (glucose) using this chemical reaction: C6H12O6(s) + 6O2(g) 🡪 6CO2(g) + 6H2O(l) + 27,000kJ; how many moles O2 would be needed if 34,290 kJ of energy were produced
6. Convert 2.92 x 1022 atoms of Sn to grams.
7. Calculate the theoretical yield of AlF3 obtained from the reaction of 0.56 moles of Al in the reaction: 2Al + 3F2 → 2AlF3. If 40 grams of the product was actually produced, calculate the percent yield.
8. In the following unbalanced equation: \_\_CO + \_\_H2 🡪 \_\_CH3OH, if the actual yield for CH3OH was 23.0g and the theoretical was 23.4g, what was the % yield?
9. CH4 + 2O2 → CO2 + 2H2O + 242kJ

How many kJ are produced from 52 g of CH4 in the above equation?

1. Fe + CuCl2 + 93kJ FeCl32 + Cu

How many grams of FeCu2 are made from 800kJ of energy?

1. K3PO4 + Al(NO3)3 → 3KNO3 + AlPO4

H­ow many grams of aluminum phosphate are produced from 12 moles of aluminum nitrate in the above equation?

1. Study the diagram showing a chemical reaction and the chemical equation that represents the reaction. Then complete the table. Show your calculations for questions y - aa in the space below the table.

The molar masses are:

O2 - 32.00 g/mol

 NO - 30.01 g/mol

NO2 - 46.01 g/mole

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Amount of O2** | **Amount of NO** | **Amount of NO2** | **Limiting Reactant** | **Amount and Name of Excess Reactant** |
| 1 molecule | 2 molecules | 2 molecules | None | None |
| 4 molecules | 4 molecules | 4 molecules | NO | 2 molecules O2 |
| 2 molecules | 8 molecules | **a.** | **b.** | **c.** |
| 1.00 mole | 2.00 mole | **d.** | **e.** | **f.** |
| 4.00 mole | 4.00 mole | **g.** | **h.** | **i.** |
| 5.00 mole | 7.00 mole | **j.** | **k.** | **l.** |
| 1.00 mole | 4.00 mole | **m.** | **n.** | **o.** |
| 0.500 mole | 0.200 mole | **p.** | **q.** | **r.** |
| 32.00 g | 60.02 g | **s.** | **t.** | **u.** |
| 16.00 g | 80.00 g | **v.** | **w.** | **x.** |
| 10.00 g | 20.00 g | **y.** | **z.** | **aa.** |

1. WORK FOR Y, Z, AND AA: