Mass Practice Worksheet

$$3\,H_2 + \_\_\,N_2 \rightarrow 2\,NH_3$$

1. How many moles of H_2 are needed to react with 2.5 moles of N_2?

$$2.5\ mol\ N_2 \left| \frac{3\ mol\ H_2}{1\ mol\ N_2} \right| = 7.5\ mol\ H_2$$

2. How many moles of NH_3 can be produced by 2.5 moles of N_2?

$$2.5\ mol\ N_2 \left| \frac{2\ mol\ NH_3}{1\ mol\ N_2} \right| = 5.0\ mol\ NH_3$$

$$\_\_\,CaCl_2 + 2\,AgNO_3 \rightarrow \_\_\,Ca(NO_3)_2 + 2\,AgCl$$

3. What mass of $AgNO_3$ solution is needed to react with 2.50 g or $CaCl_2$?

$$2.50g\ CaCl_2 \left| \frac{1\ mol\ CaCl_2}{110.98g\ CaCl_2} \right| \left| \frac{2\ mol\ AgNO_3}{1\ mol\ CaCl_2} \right| \left| \frac{169.88g\ AgNO_3}{1\ mol\ AgNO_3} \right| = 7.65g\ AgNO_3$$

4. What is the mass of $CaCl_2$ needed to react with 0.250 g $AgNO_3$?

$$0.250g\ AgNO_3 \left| \frac{1\ mol\ AgNO_3}{169.88g\ AgNO_3} \right| \left| \frac{1\ mol\ CaCl_2}{2\ mol\ AgNO_3} \right| \left| \frac{110.98g\ CaCl_2}{1\ mol\ CaCl_2} \right| = 0.0817g\ CaCl_2$$

$$\_\_\,HCl + \_\_\,NaHCO_3 \rightarrow \_\_\,NaCl + \_\_\,H_2O + \_\_\,CO_2$$

5. What mass of NaCl can be produced from 2.00 g of $NaHCO_3$ in the above reaction?

$$2.00g\ NaHCO_3 \left| \frac{1\ mol\ NaHCO_3}{84.01g\ NaHCO_3} \right| \left| \frac{1\ mol\ NaCl}{1\ mol\ NaHCO_3} \right| \left| \frac{58.44g\ NaCl}{1\ mol\ NaCl} \right| = 1.39g\ NaCl$$

6. What mass of CO_2 can be produced by reacting 2.50 grams of $NaHCO_3$ with excess acid?

$$2.50g\ NaHCO_3 \left| \frac{1\ mol\ NaHCO_3}{84.01g\ NaHCO_3} \right| \left| \frac{1\ mol\ CO_2}{1\ mol\ NaHCO_3} \right| \left| \frac{44.01g\ CO_2}{1\ mol\ CO_2} \right| = 1.31g\ CO_2$$