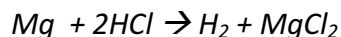


Name: _____ Per _____

Problem of the Unit

Practice Sheet 19

1. Why do chemists measure quantities in the mole rather than in atoms/molecules?
2. In the lab you measure out 8.5 g of solid magnesium metal. You then react the magnesium metal with 25 mL of hydrochloric acid. You observe that the reaction produces a gas and feels warm. The following equation shows the chemical reaction that takes place during these observations.



- a. Determine the molar mass of each of the reactants and products.
 - b. How many moles of hydrochloric acid are produced from 8.5 g of Hydrochloric acid?
 - c. How many moles of Mg can be produced from 7.89×10^{25} atoms of Mg?
 - d. How many molecules of magnesium chloride product will be produced from 0.85 kg of magnesium chloride?
3. The product that you formed in the above reaction, is known to form the hydrate, $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$.
 - a. Name this hydrate.
 - b. Determine the percent composition of each element in this compound.
 - c. Determine the percent composition of water in this hydrate.