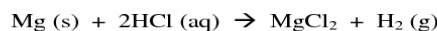


Date: \_\_\_\_\_ Block: \_\_\_\_\_ Name: \_\_\_\_\_

**Chemistry 11 - MOLE RATIOS (using the three step method)**

Magnesium metal reacts with hydrochloric acid to produce magnesium chloride and hydrogen gas. The chemical equation is given as the following:



If 4 moles of HCl is used, how many moles of MgCl<sub>2</sub> will be formed in the reaction?

**Step (1): What is the mole ratio for HCl to MgCl<sub>2</sub>?**



**Step (2): Write two conversion factors for this mole ratio.**



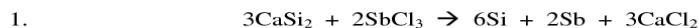
**Step (3): Calculate the number of moles of MgCl<sub>2</sub> formed.**

**What you want = What you have X Conversion factor**



**2 mol MgCl<sub>2</sub>**

*Now try these example questions on a separate sheet of paper using the 3-step method!*



a) If 0.65 moles of CaSi<sub>2</sub> is used, how many moles of Sb will be formed in the reaction?

**Answer: 0.43 mol Sb**

b) If 1.47 moles of Si is formed in the reaction, how many moles of SbCl<sub>3</sub> was used at the start of the reaction?

**Answer: 0.49 mol SbCl<sub>3</sub>**

2. In a Chemistry 11 experiment, John mixes 0.010 moles of calcium chloride together with silver nitrate in a beaker. This results in the formation of silver chloride and calcium nitrate. How many moles of silver chloride are formed in the reaction?

**Answer: 0.020 mol AgCl**