**Recipe for Success (in Chemistry)**

A student had the following recipe for custard:

**2 cups milk + 3 T custard powder + 1 egg = 2 cups of custard**

Assuming you have **plenty of all the ingredients** and using dimensional analysis:

A) How many cups of custard can you make with 4 cups of milk?

B) How many T of custard powder would be required to make 3 cups of custard?

C) How many eggs would you need to make 8 cups of custard?

**A balanced chemical equation (BCE) is just like a recipe.**

It indicates how many atoms/molecules/ions **OR** how many **moles** of each **reactant** are required to reactant.

 it indicates how many atoms/molecules/ions **OR** how many **moles** of each **product** are formed.

In English, indicate what the following balanced chemical equation means:

**Zn(s) + 2 HCl(aq) 🡪 ZnCl2(aq) + H2(g)**

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**Zn(s) + 2 HCl(aq) 🡪 ZnCl2(aq) + H2(g)**

Determine all of the mole ratios between **Reactants** and **Products**:

\_\_\_\_\_\_\_ moles of Zn to \_\_\_\_\_\_\_ moles of HCl

\_\_\_\_\_\_\_ moles of HCl to \_\_\_\_\_\_\_ moles of ZnCl2

\_\_\_\_\_\_\_ moles of ZnCl2 to \_\_\_\_\_\_\_ moles of H2

\_\_\_\_\_\_\_ moles of H2 to \_\_\_\_\_\_\_ moles of Zn

Solve the following problems:

1) How many moles of H2 would form if 2 moles of Zn reacted?

2) How many moles of H2 would form if 4 moles of HCl reacted?

3) How many moles of Zn are required to produce 5 moles of hydrogen gas?

4) How many moles of HCl are required to produce 3 moles of ZnCl2?