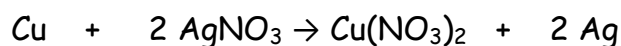


## Stoichiometry Class Problems #2

1. According to the equation below, adding copper (Cu) to silver nitrate ( $\text{AgNO}_3$ ) allows a chemical reaction to occur that produces silver (Ag) and copper nitrate ( $\text{Cu(NO}_3)_2$ ).



### A- Molecules to grams (Steps 1-4)

If  $3.33 \times 10^7$  molecules of Cu are available, how many grams of silver nitrate  $\text{AgNO}_3$  would react with it?

### B- Grams to atoms (Steps 1-4)

If 400.0 g of copper nitrate  $\text{Cu(NO}_3)_2$  was produced, how many Cu atoms must have reacted with the copper nitrate?

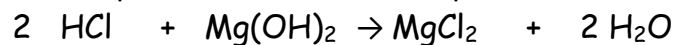
### C- Atoms to moles (Steps 1-3)

If  $7.5 \times 10^4$  Ag atoms are available, how many moles of silver nitrate  $\text{AgNO}_3$  would react with it?

### D- Moles to molecules (steps 1, 3 and 4)

If 3.0 moles of Cu were used in the reaction, how many molecules of  $\text{Cu(NO}_3)_2$  would be produced?

2. Use the equation below to solve questions A and B

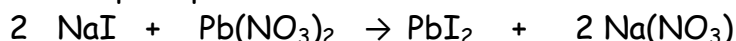


A- If 700.0 g of water was produced, how many molecules of magnesium chloride ( $\text{MgCl}_2$ ) must have reacted with the oxygen?

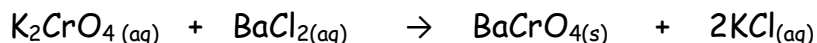
B- If  $3.3 \times 10^9$  molecules of HCl are available, how many moles of water react with it?

### **Mole and stoichiometry combination questions**

1. 200.0 mL of NaI whose concentration is 2.0 M are reacted with  $\text{Pb(NO}_3)_2$  in order to obtain the precipitate  $\text{PbI}_2$ . Calculate the mass of  $\text{PbI}_2$  obtained.



2. 75mL of  $\text{BaCl}_2$  is used to produce  $\text{BaCrO}_4$ . If 4.81g of  $\text{BaCrO}_4$  is made, what is the concentration of the  $\text{BaCl}_2$  used? The following equation represents the reaction:



3. How many mL of a 6.0M solution of HCl are needed to react with 4.85g of  $\text{NaHCO}_3$ ? The equation that represents the reaction follows.

