

Name \_\_\_\_\_

Molarity Problems

$$\text{Molarity (M)} = \frac{\text{mol}}{\text{L}}$$

1. What concentration of solution would be prepared in 32 g of  $\text{CuCl}_2$  we dissolved in 134 mL of water?

2. What mass of  $\text{NH}_4\text{Cl}$  do I need to make 250 mL of a 0.75 M solution?

3. Balance the equation  $\text{Al} + \text{HCl} \rightarrow \text{AlCl}_3 + \text{H}_2$   
If 0.29 L of a 2.1 M solution of HCl is reacted completely, what would the molarity of  $\text{AlCl}_3$  be if the final volume is .75 L?

4. Balance the equation  $\text{K} + \text{H}_2\text{O} \rightarrow \text{KOH} + \text{H}_2$   
If 3.6 g of K are dropped in water and reacted completely, what is the molarity of KOH if the final solution is 1.4 L?

5. Continuing with the previous problem, what will the volume of  $\text{H}_2$  gas be if the temperature is  $12^\circ\text{C}$  and the pressure is 104 kPa?

6.  $\text{NaHCO}_3 + \text{CH}_3\text{COOH} \rightarrow \text{H}_2\text{O} + \text{CO}_2 + \text{NaCH}_3\text{COO}$   
If 3.2 g of  $\text{NaHCO}_3$  is added to 451 mL of a 1.2 M solution of  $\text{CH}_3\text{COOH}$ , what volume of a  $\text{CO}_2$  is produced at 287 K and 123 kPa?  
(this includes limiting reactants, gas laws and molarity)