

**CHE 101 - Homework - Ch 6d**  
**Molarity and Titrations**

p. 327-331 and 366-368

Score: \_\_\_\_/40

Name: \_\_\_\_\_

Date: \_\_\_\_\_

[3 pt] 1. What is the molarity of a solution made from 5.0 moles of  $\text{H}_2\text{SO}_4$  in 250.0 mL of water? 1. \_\_\_\_\_

[4 pt] 2. What is the molarity of a solution made from 125.5 grams of  $\text{KNO}_3$  in 500.0 mL of water? 2. \_\_\_\_\_

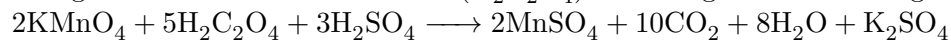
[4 pt] 3. How many mols of  $\text{HCl}$  are in a 150.0 mL of a 2.0 M solution? 3. \_\_\_\_\_

[4 pt] 4. How many grams of boric acid ( $\text{H}_3\text{BO}_3$ ) would I need to prepare a 167 mL of a 0.200 M solution? 4. \_\_\_\_\_

[5 pt] 5. Given the reaction:  $\text{Zn(s)} + 2\text{HCl(aq)} \longrightarrow \text{ZnCl}_2\text{(aq)} + \text{H}_2\text{(g)}$  How many grams of  $\text{H}_2$  gas can be produced from 250.0 mL of 2.0 M  $\text{HCl}$ ? 5. \_\_\_\_\_

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- [5 pt] 6. Potassium permanganate reacts with oxalic acid ( $\text{H}_2\text{C}_2\text{O}_4$ ) according to the following equation:



How many millilitres of a 0.150 M  $\text{KMnO}_4$  solution are needed to react completely with 2.25 grams of oxalic acid?

6. \_\_\_\_\_

- [5 pt] 7. Given the following reaction:  $2\text{HCl}(\text{aq}) + \text{Pb}(\text{OH})_2(\text{aq}) \longrightarrow 2\text{H}_2\text{O}(\text{l}) + \text{PbCl}_2(\text{s})$  If 12.0 grams of  $\text{Pb}(\text{OH})_2$  react with 25.0 mL of 0.355 M HCl how many grams of  $\text{PbCl}_2$  will be produced?

7. \_\_\_\_\_

- [5 pt] 8. How many mL of a 0.25 M solution of NaOH are required to neutralize 175.0 mL of 0.15 M solution of HCl? ( $\text{HCl} + \text{NaOH} \longrightarrow \text{NaCl} + \text{H}_2\text{O}$ )

8. \_\_\_\_\_

- [5 pt] 9. 115.5 mL of 0.45 M  $\text{H}_2\text{SO}_4$  is required to neutralize 255.0 mL of KOH solution. What is the molarity of the KOH solution? ( $\text{H}_2\text{SO}_4 + 2\text{KOH} \longrightarrow \text{K}_2\text{SO}_4 + 2\text{H}_2\text{O}$ )

9. \_\_\_\_\_