

Name: _____

Date: _____

[5 pt] 1. Buffer Basics (get it, haha)!

(a) Define the term "Buffer" solution as it pertains to acid/base chemistry.

(b) What two ways are buffers made?

(c) The strength of a buffer is (directly or inversely proportional) too what **TWO** properties of a solution?

[4 pt] 2. Which of the following are buffer solutions? Explain.

(a) $0.1 \text{ M NH}_3 + 0.1 \text{ M HCl}$ (a) _____(b) $0.1 \text{ M NH}_3 + 0.1 \text{ M NH}_4\text{Cl}$ (b) _____(c) $0.1 \text{ M NH}_4\text{Cl} + 0.1 \text{ M HCl}$ (c) _____[3 pt] 3. Which solution has the higher buffering capacity (a) 50.0 mL of 0.2 M NH_4Br / 0.3 M NH_3 or (b) 50.0 mL of 0.4 M NH_4Br / 0.6 M NH_3 ? Explain.

CHE 112 - Homework - Ch 14d

Since I didn't leave much room (and unless you write real small) you will probably need lots of extra paper, just staple it to the homework.

- [6 pt] 4. What is the pH of a buffer solution of made from 0.500 M HSO_3^- and 0.300 M Na_2SO_3 ? 4. _____
 $K_a = 6.8 \times 10^{-8}$. Calculate the pH using the ICE method.
- [6 pt] 5. What is the pH of a buffer solution of made from 0.500 M HSO_3^- and 0.300 M Na_2SO_3 ? 5. _____
Calculate the pH using HH equation.
- [6 pt] 6. What is the pH of the solution in Question 4/5, after the addition of 0.10 mol HCl? 6. _____
Use the ICE method **AND** double check with the HH Equation.
- [6 pt] 7. What is the pH of the solution in Question 4/5, after the addition of 0.10 mol NaOH? 7. _____
Use the ICE method **AND** double check with the HH Equation.
- [4 pt] 8. What volume ratio should you mix 1.0M solutions of CH_3COOH and CH_3COONa to 8. _____
create a buffer which has a pH of 4.44.