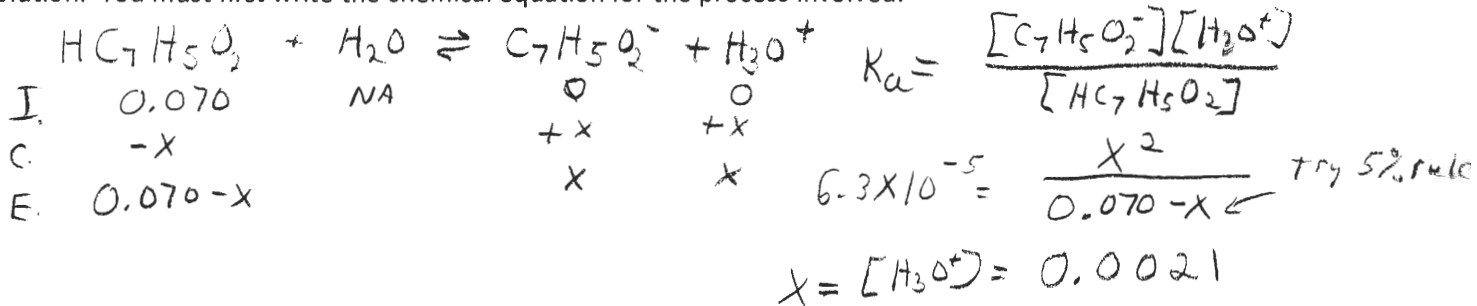


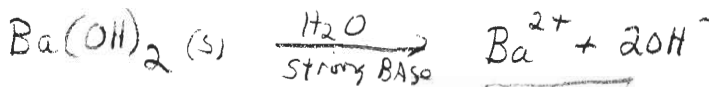
****SHOW ALL WORK TO RECEIVE CREDIT****

1. (7 Pts) Benzoic acid ($\text{HC}_7\text{H}_5\text{O}_2$) has a K_a of 6.3×10^{-5} . Determine the pH of 300.0 mL of a 0.070 M benzoic acid solution. You must first write the chemical equation for the process involved.



pH = 2.68

2. (4 Pts) Determine the $[\text{H}_3\text{O}^+]$, the pH, $[\text{OH}^-]$, and the pOH of 85.0 mL of a 0.015 M barium hydroxide solution.



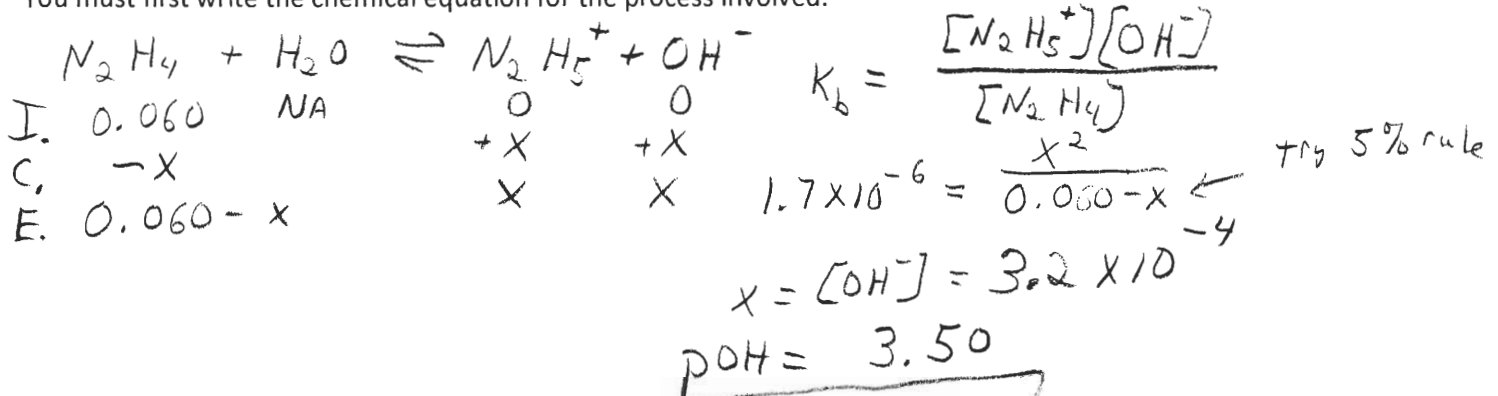
$[\text{OH}^-] = 2 \times 0.015 = 0.030$

pOH = 1.52

pH = 12.48

$[\text{H}_3\text{O}^+] = 10^{-12.48} = 3.3 \times 10^{-13}$

3. (7 Pts) Hydrazine, N_2H_4 , is a weak base with a K_b of 1.7×10^{-6} . Determine the pH of a 0.060 M solution of hydrazine. You must first write the chemical equation for the process involved.



pH = 10.50

4. (7 Pts) A 0.050 M solution of a weak acid has a pH of 4.25. Determine the K_a of the weak acid. You must first write the chemical equation for the process involved.

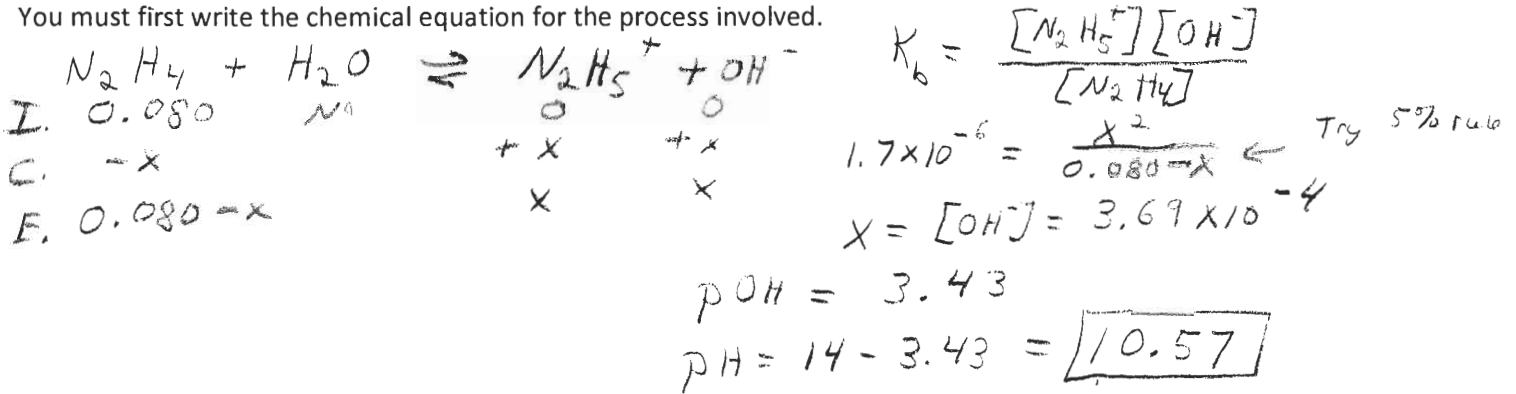


Since $x = [\text{H}_3\text{O}^+] = 10^{-\text{pH}} = 10^{-4.25} = 5.62 \times 10^{-5}$

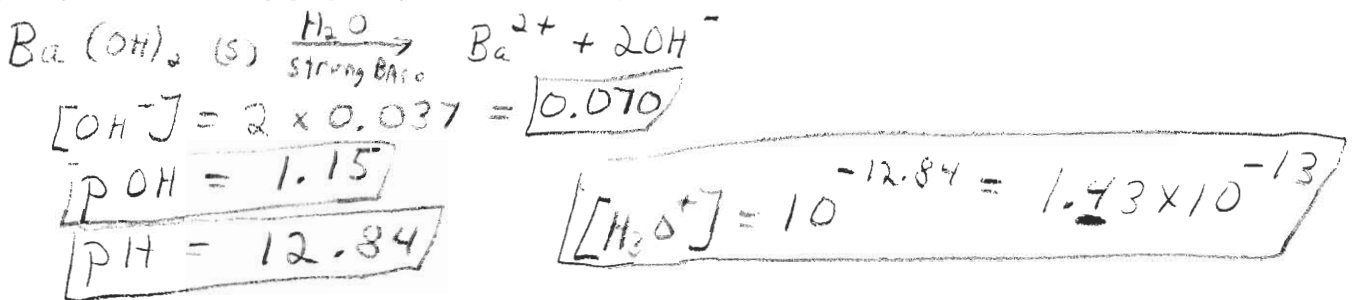
$K_a = 6.3 \times 10^{-8}$

****SHOW ALL WORK TO RECEIVE CREDIT****

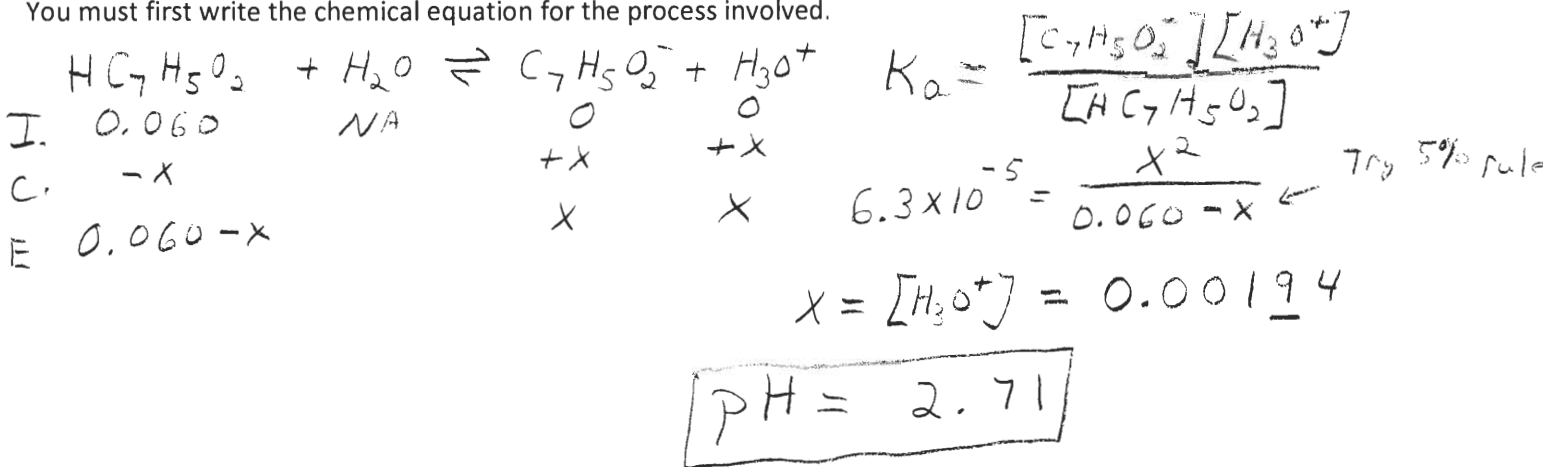
1. (7 Pts) Hydrazine, N_2H_4 , is a weak base with a K_b of 1.7×10^{-6} . Determine the pH of a 0.080 M solution of hydrazine. You must first write the chemical equation for the process involved.



2. (4 Pts) Determine the $[H_3O^+]$, the pH, $[OH^-]$, and the pOH of 95.0 mL of a 0.035 M barium hydroxide solution.



3. (7 Pts) Benzoic acid ($HC_7H_5O_2$) has a K_a of 6.3×10^{-5} . Determine the pH of 700.0 mL of a 0.060 M benzoic acid solution. You must first write the chemical equation for the process involved.



4. (7 Pts) A 0.070 M solution of a weak acid has a pH of 4.75. Determine the K_a of the weak acid. You must first write the chemical equation for the process involved.

