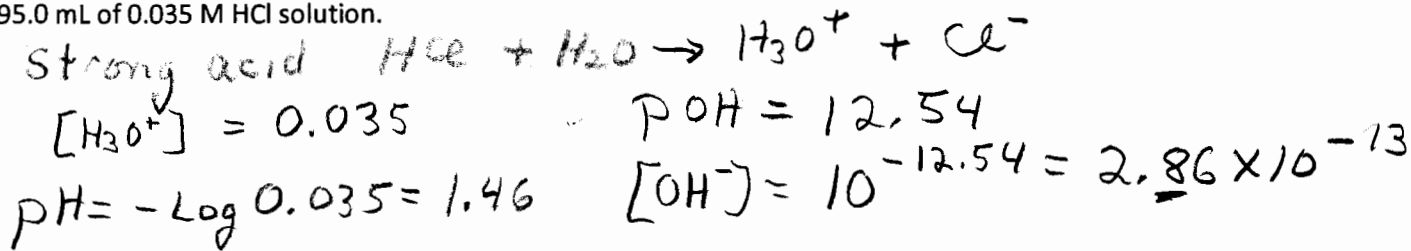


Key (white)

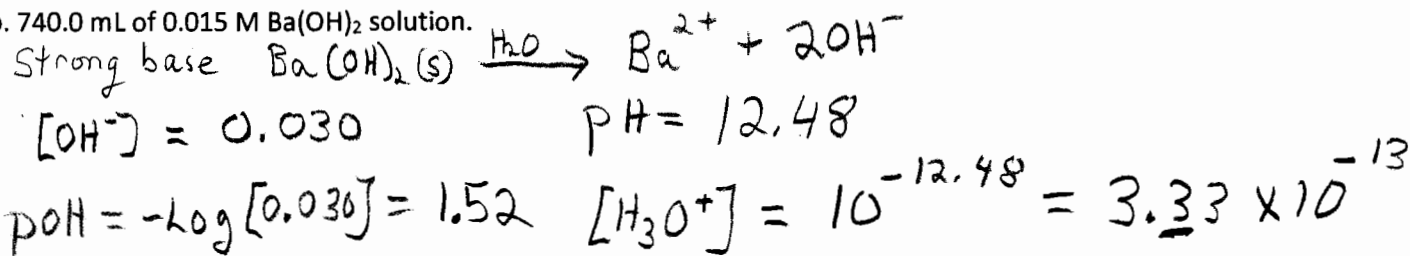
Show all work to receive credit.

1. (8 Pts) Determine the pH, pOH, $[H_3O^+]$ and $[OH^-]$ of each of the following solutions.

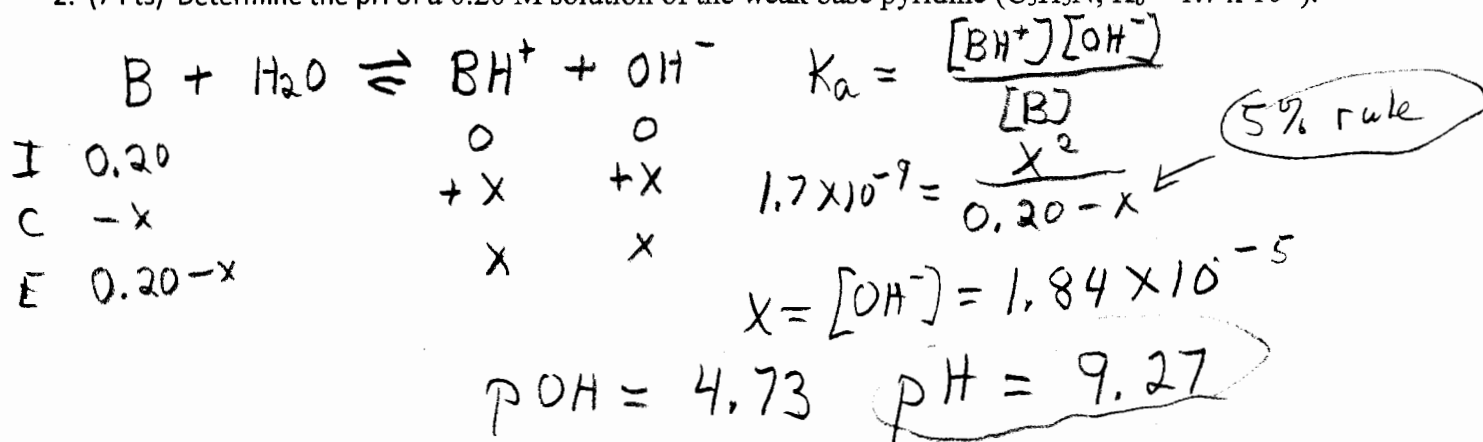
a. 95.0 mL of 0.035 M HCl solution.



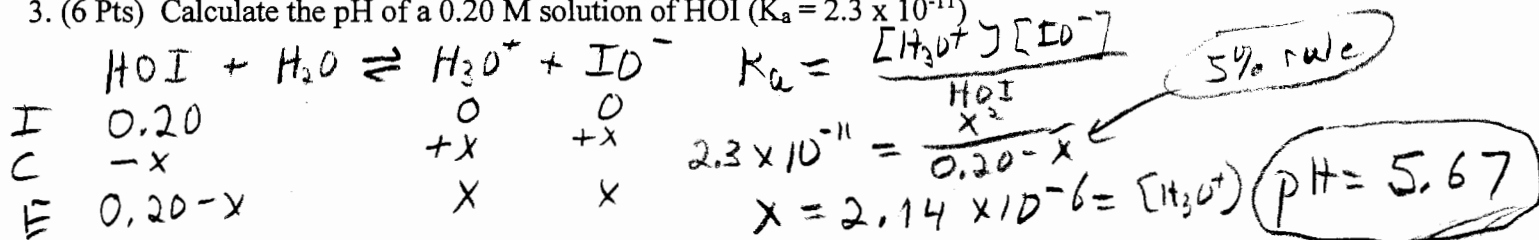
b. 740.0 mL of 0.015 M $Ba(OH)_2$ solution.



2. (7 Pts) Determine the pH of a 0.20 M solution of the weak base pyridine (C_5H_5N ; $K_b = 1.7 \times 10^{-9}$).



3. (6 Pts) Calculate the pH of a 0.20 M solution of HOI ($K_a = 2.3 \times 10^{-11}$)



4. (4 Pts) In the reaction: $HCl + NH_3 \rightleftharpoons NH_4^+ + Cl^-$,

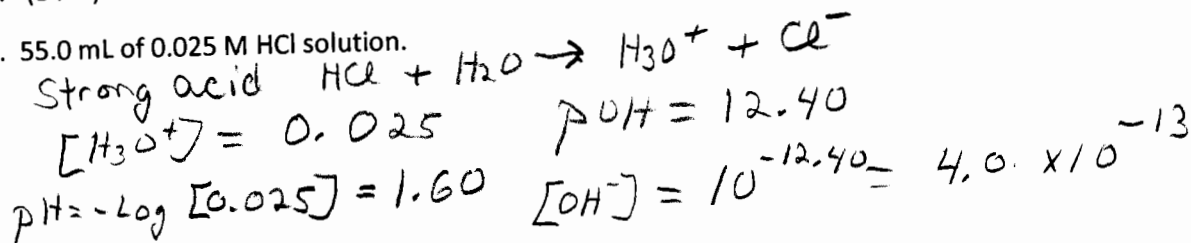
a. HCl is an acid and Cl^- is its conjugate base.

b. NH_3 is a base and NH_4^+ is its conjugate acid.

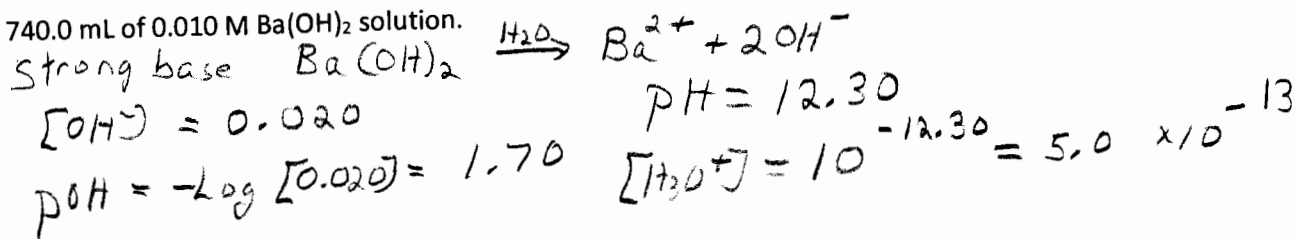
Show all work to receive credit.

1. (8 Pts) Determine the pH, pOH, $[H_3O^+]$ and $[OH^-]$ of each of the following solutions.

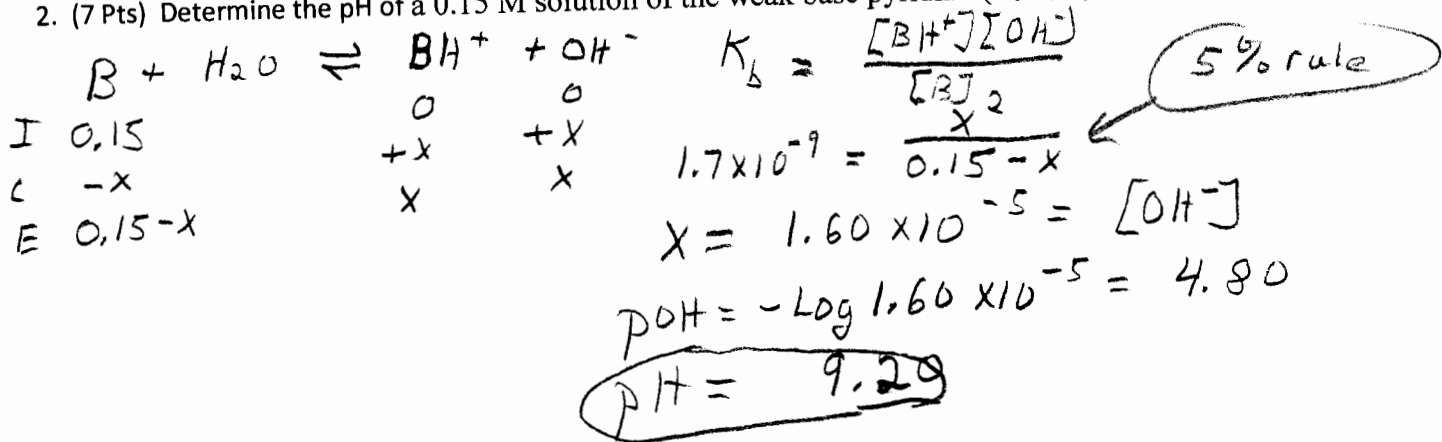
a. 55.0 mL of 0.025 M HCl solution.



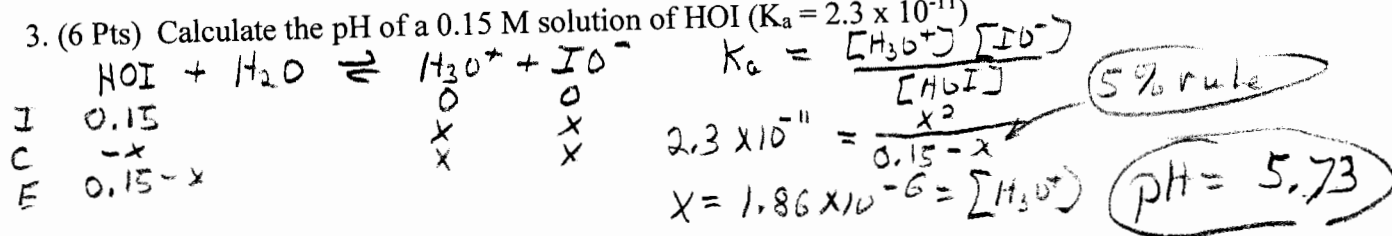
b. 740.0 mL of 0.010 M $Ba(OH)_2$ solution.



2. (7 Pts) Determine the pH of a 0.15 M solution of the weak base pyridine (C_5H_5N ; $K_b = 1.7 \times 10^{-9}$).



3. (6 Pts) Calculate the pH of a 0.15 M solution of HOI ($K_a = 2.3 \times 10^{-11}$).



4. (4 Pts) In the reaction: $HNO_3 + NH_3 \rightleftharpoons NH_4^+ + NO_3^-$,

a. HNO_3 is an acid and NO_3^- is its conjugate base.

b. NH_3 is a base and NH_4^+ is its conjugate acid.