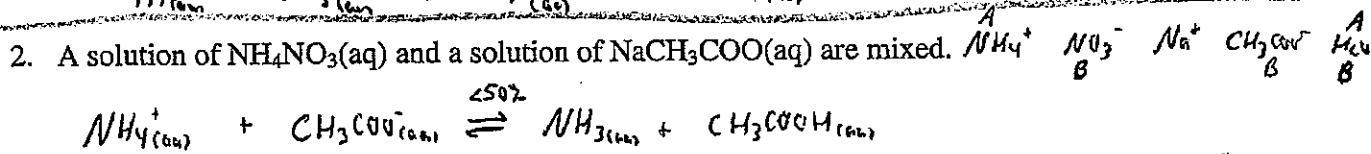
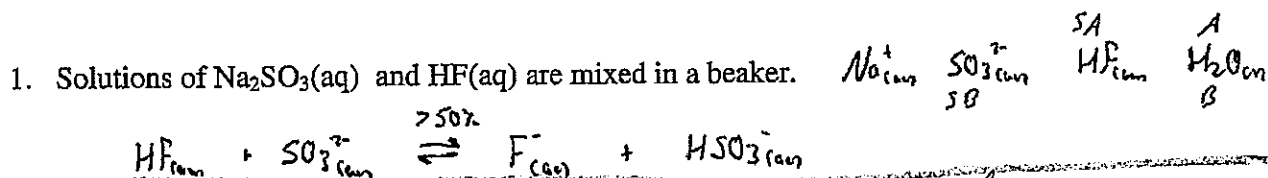


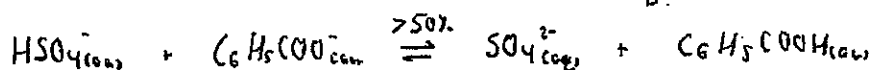
## Predicting Acid-Base Reactions

For each of the following problems:

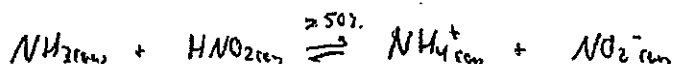
- Write a reaction equation.
- Label reactants as acid or base and products as conjugate acid or conjugate base.
- Use appropriate arrow notation to indicate reaction predomination (forward or reverse).



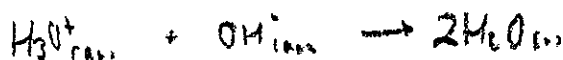
3. Sodium benzoate is often used as a preservative. Write the equation for  $\text{NaC}_6\text{H}_5\text{COO}(\text{s})$  dissolving in a solution of  $\text{NaHSO}_4(\text{aq})$ .  $\text{Na}^+$   $\text{C}_6\text{H}_5\text{COO}^-$   $\text{HSO}_4^-$   $\text{H}_2\text{O}$



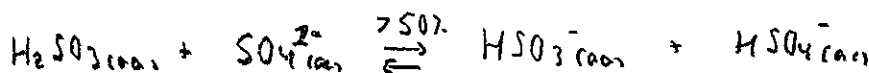
4. A household ammonia solution is mixed with a solution of nitrous acid.  $\text{NH}_3_{(\text{aq})}$   $\text{HNO}_2_{(\text{aq})}$   $\text{H}_2\text{O}_{(\text{aq})}$



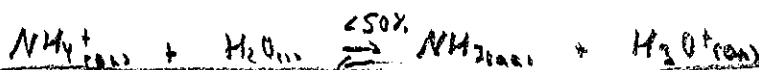
5. Nitric acid and potassium hydroxide solutions are mixed.  $\text{H}_3\text{O}^+$   $\text{NO}_3^-$   $\text{K}^+$   $\text{OH}^-$



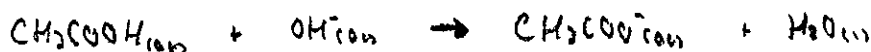
6. Sodium sulphate is dissolved into a solution of sulphurous acid.  $\text{Na}^+$   $\text{SO}_4^{2-}$   $\text{H}_2\text{SO}_3_{(\text{aq})}$   $\text{H}_2\text{O}_{(\text{aq})}$



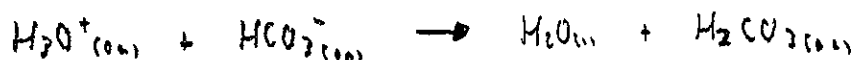
7. Ammonium fluoride is dissolved in water.  $\text{NH}_4^+$   $\text{F}^-$   $\text{H}_2\text{O}_{(\text{aq})}$



8. Vinegar, a dilute ethanoic acid solution, is used to neutralize some spilled lye (sodium hydroxide)  $\text{CH}_3\text{COOH}_{(\text{aq})}$   $\text{Na}^+$   $\text{OH}^-_{(\text{aq})}$   $\text{H}_2\text{O}_{(\text{aq})}$



9. Sodium hydrogen carbonate may be used directly or in *gripe water* to neutralize excess stomach acid,  $\text{HCl}_{(\text{aq})}$ .  $\text{Na}^+$   $\text{HCO}_3^-_{(\text{aq})}$   $\text{H}_3\text{O}^+_{(\text{aq})}$   $\text{Cl}^-_{(\text{aq})}$   $\text{H}_2\text{O}_{(\text{aq})}$



10. Sodium hydrogen carbonate is mixed with a solution of potassium dihydrogen phosphate.  $\text{Na}^+$   $\text{HCO}_3^-_{(\text{aq})}$   $\text{K}^+$   $\text{H}_2\text{PO}_4^-$   $\text{H}_2\text{O}_{(\text{aq})}$

