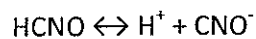
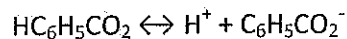


4. Benzoic acid, $\text{HC}_6\text{H}_5\text{CO}_2$, is an organic acid whose sodium salt, $\text{NaC}_6\text{H}_5\text{CO}_2$, has long been used as a safe food additive to protect beverages and many foods against harmful yeasts and bacteria. The acid is monoprotic. Write the equation for its K_a .

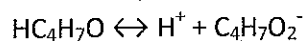
5. The $[\text{H}^+]$ of a 0.10 M solution of cyanic acid (HCNO) is found to be 0.0010 M. Calculate the K_a for cyanic acid.



6. If 1.22 grams of benzoic acid, $\text{HC}_6\text{H}_5\text{CO}_2$, is dissolved in 1.0 L of water, the $[\text{H}^+]$ is found to be 8.0×10^{-4} M. Calculate the K_a for benzoic acid.



7. A 0.0050 M solution of butyric acid, HC_4H_7 , has a $\text{pH} = 4.0$, calculate K_a .



8. Determine the $[\text{OH}^-]$ and the $[\text{H}^+]$ of a 0.20 M solution of formic acid. The $K_a = 1.8 \times 10^{-4}$

