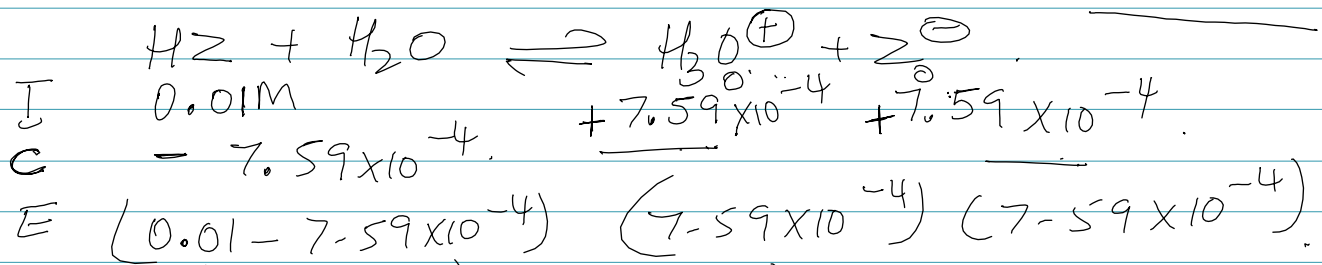


Sayonara

Acid Base Eq (4) Calculating K_a/pK_a or K_b/pK_b .

① You discovered a new acid (HZ). The pH of a 0.0100M solution of this acid is 3.12. What are the K_a and pK_a for this acid? antilog 0.01 = $7.59 \times 10^{-4} M$

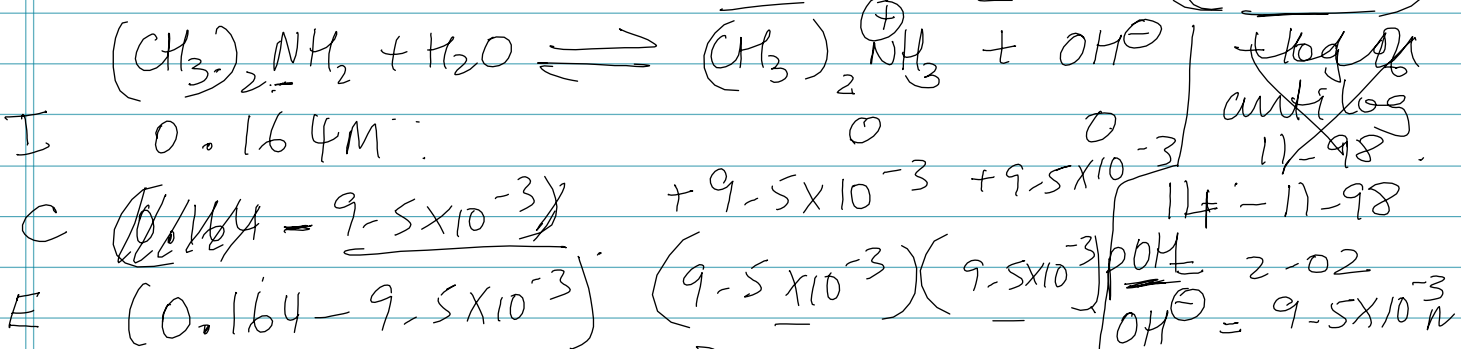


$$K_a = \frac{(7.59 \times 10^{-4})(7.59 \times 10^{-4})}{(0.01 - 7.59 \times 10^{-4})}$$

$$K_a = \boxed{6.2 \times 10^{-5}}$$

$$pK_a = -\log 6.2 \times 10^{-5} = \boxed{4.21}$$

② The pH of 0.164M aq. solution of dimethyl amine is 11.98. What are the K_b and pK_b ? $(CH_3)_2NH_2$



$\begin{aligned} & + \log M \\ & \text{antilog} \\ & 11.98 \\ & \hline & 14 - 11.98 \\ & \hline & 2.02 \\ & \text{pOH} \\ & \hline & \text{OH}^- = 9.5 \times 10^{-3} \end{aligned}$

$$K_b = \frac{(9.5 \times 10^{-3})^2}{(0.164 - 9.5 \times 10^{-3})} = \boxed{5.8 \times 10^{-4}}$$

$$pK_b = -\log 5.8 \times 10^{-4} = \boxed{3.24}$$