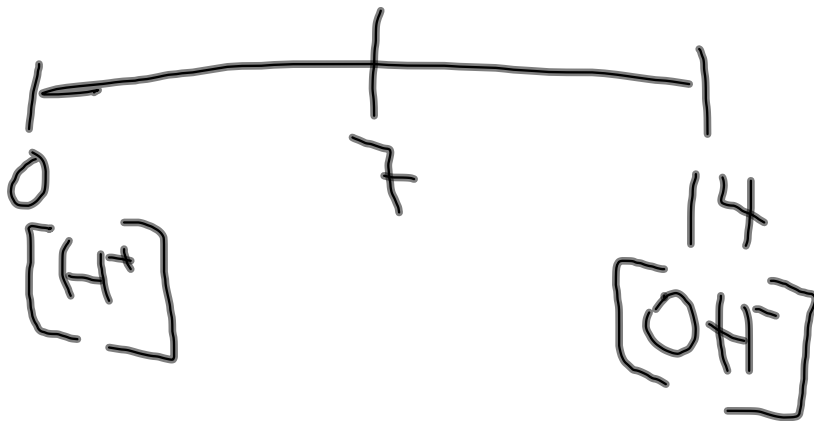


\rightleftharpoons eq.

\longleftrightarrow resonance

$$p(\text{anything}) = -\log(\text{anything})$$

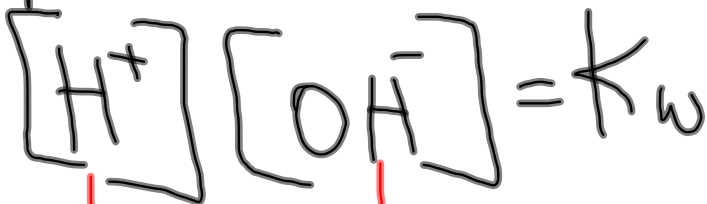


$$[H^+] = 3.6 \times 10^{-4}$$

$$pH = 3.4$$

$$[OH^-] = 1.0 \times 10^{-4}$$
$$pOH = 4$$

$$pH + pOH = 14 \quad pK_a + pK_b = 14$$



$$K_a \times K_b = K_w$$
$$K_w = 1.0 \times 10^{-14}$$

$$\text{pH} = \text{pK}_a + \log \left[\frac{\text{base}}{\text{acid}} \right]$$

$$[\text{base}] = [\text{acid}]$$

$$\text{then } \text{pH} = \text{pK}_a$$

usually
add
dec. #

$$[\text{base}] = 1.0 \times 10^{-10}$$

$$[\text{acid}] = 2.6 \times 10^{-4}$$

$$\log \left[\frac{10^{-10}}{10^{-4}} \right]$$

$$\log [10^{-6}]$$



$$\begin{aligned} [\text{H}^+] &= .02 \times 2 \\ &= .04 \\ &= 4.0 \times 10^{-2} \end{aligned}$$

	[A]	[B]	[Rate]
1	0.10	0.10	0.01
2	0.10	0.10	0.01
3	0.10	0.20	0.02
4	0.20	0.20	0.08

$$\text{Rate} = k [A]^2 [B]^1$$