

$$\boxed{[H^+] = 4.3 \times 10^{-5}} \quad pH = -\log(4.3 \times 10^{-5})$$

$$\boxed{pOH = 9.63} \quad \leftarrow \quad \boxed{pH = 4.37}$$

$$[OH^-] = 10^{-9.63} = \boxed{2.3 \times 10^{-10} \text{ M}}$$

$$[H^+] = ?$$

$$pH = 11.2 \quad [H^+] = 10^{-11.2} = 6.3 \times 10^{-12} \text{ M}$$

$$pOH = 2.8 \quad [OH^-] = 10^{-2.8} = 1.6 \times 10^{-3} \text{ M}$$



perchloric acid reacts with barium hydroxide



If it takes 8.5 ml of an $HClO_4$ solution to completely neutralize 5.14 ml of 0.20M $Ba(OH)_2$, what was the pH of the acid?

$$Ba(OH)_2 : (0.20M)(0.00514L) = 1.03 \times 10^{-3} \text{ mol } Ba(OH)_2$$

$$1.03 \times 10^{-3} \text{ mol } Ba(OH)_2 \times \frac{2 \text{ mol } HClO_4}{1 \text{ mol } Ba(OH)_2} = \frac{2.06 \times 10^{-3} \text{ mol } HClO_4}{0.0085L}$$

$$[H^+] = 0.24M$$

$$pH = -\log(0.24) = \boxed{0.62}$$

$$\downarrow$$

$$0.24M \text{ } HClO_4$$

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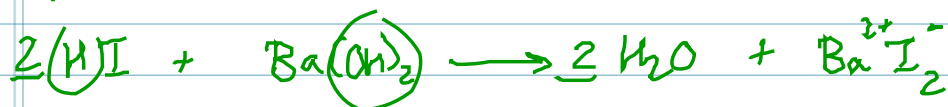
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$$0.24 \text{ M } HClO_4$$