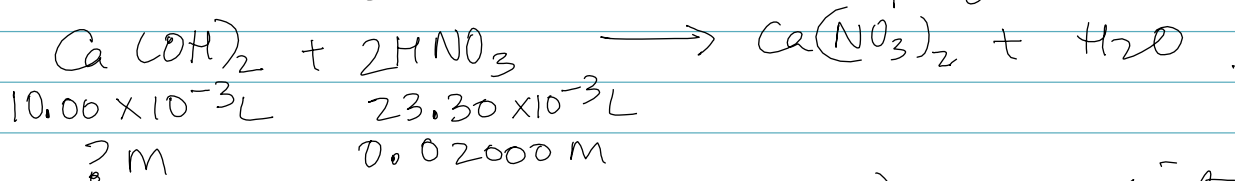


Solution Stoichiometry - Acid-Base (4)

- ① A 10.00 mL of Ca(OH)_2 solution is neutralized by 23.30 mL of 0.02000 M HNO_3 . What is the molarity of Ca(OH)_2 ?

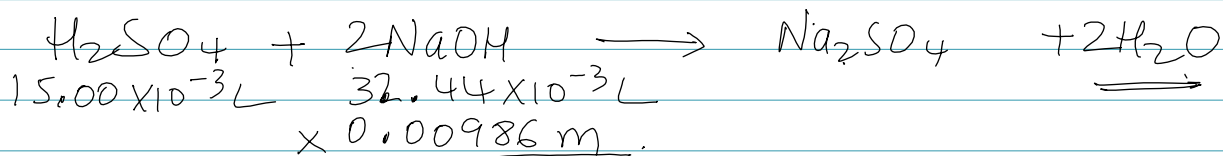


Strategy \rightarrow mol $\text{HNO}_3 \rightarrow$ mol $\text{Ca(OH)}_2 \rightarrow$ molarity.

$$23.30 \times 10^{-3} \text{ L} \times 0.02000 \frac{\text{mol HNO}_3}{\text{L}} \times \frac{1 \text{ mol Ca(OH)}_2}{2 \text{ mol HNO}_3} \times \frac{1}{10.00 \times 10^{-3} \text{ L}}$$

$$= \boxed{0.0233 \text{ M Ca(OH)}_2}$$

- ② 15.00 mL of H_2SO_4 is neutralized by 32.44 mL of 0.00986 M NaOH . What is the molarity of H_2SO_4 ?
* And what is the molarity of Na_2SO_4 formed?



$$\begin{array}{l} 0.0003198584 \\ 3.199 \times 10^{-4} \text{ mol} \end{array}$$

$$3.199 \times 10^{-4} \text{ mol NaOH} \times \frac{1 \text{ mol H}_2\text{SO}_4}{2 \text{ mol NaOH}} \times \frac{1}{15.00 \times 10^{-3} \text{ L}} = \boxed{0.01066 \text{ M}}$$

molarity of Na_2SO_4 mol $\text{NaOH} \rightarrow$ mol $\text{Na}_2\text{SO}_4 \rightarrow$ mol using total vol.

$$3.199 \times 10^{-4} \text{ mol NaOH} \times \frac{1 \text{ mol Na}_2\text{SO}_4}{2 \text{ mol NaOH}} \times \frac{1}{(15.00 \times 10^{-3} + 32.44 \times 10^{-3}) \text{ L}}$$

$$= \boxed{3.371 \times 10^{-3} \text{ M}}$$