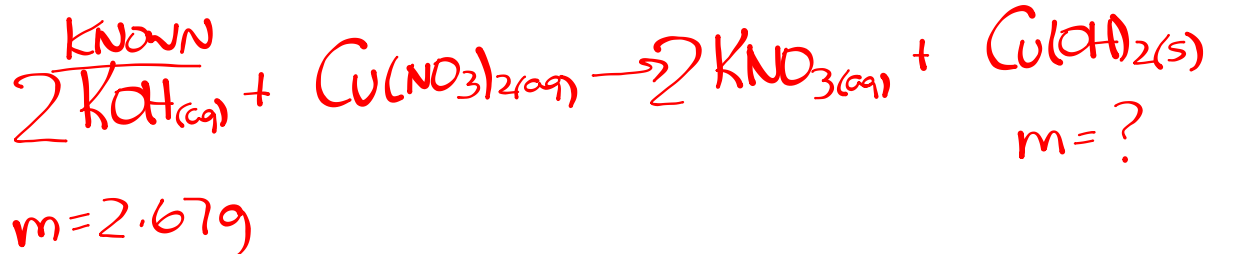
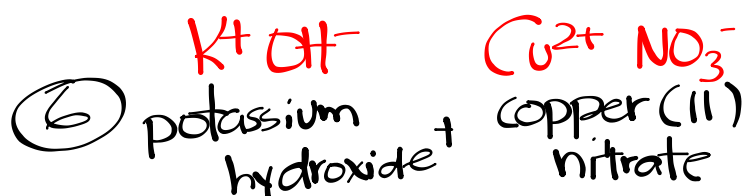


Check Worksheet



$$2.67 \text{g KOH} \times \frac{1 \text{ mol KOH}}{56.11 \text{ g KOH}} = 0.0476 \text{ mol KOH}$$

$$0.0476 \text{ mol KOH} \times \frac{1 \text{ mol Cu}(\text{OH})_2}{2 \text{ mol KOH}} = 0.0238 \text{ mol Cu}(\text{OH})_2$$

$$0.0238 \text{ mol Cu}(\text{OH})_2 \times \frac{97.57 \text{ g Cu}(\text{OH})_2}{1 \text{ mol Cu}(\text{OH})_2} = \boxed{2.32 \text{ g Cu}(\text{OH})_2}$$

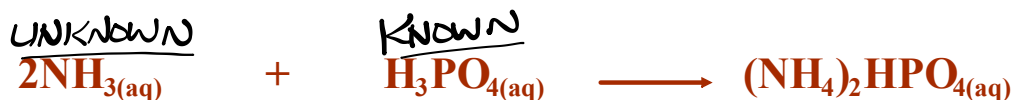
Solution Stoichiometry

SOLUTION STOICHIOMETRY

- the methods used to calculate the quantities of substances in solution.
- involves **molar concentrations and the volumes of solutions** .

Solution Stoichiometry

Solutions of ammonia and phosphoric acid are used to produce ammonium hydrogen phosphate fertilizer. What volume of 14.8 mol/L $\text{NH}_3(\text{aq})$ is needed for the ammonia to react completely with 10.0 L of 12.9 mol/L $\text{H}_3\text{PO}_4(\text{aq})$ to produce fertilizer?



$$\begin{array}{ll} C = 14.8 \text{ mol/L} & C = 12.9 \text{ mol/L} \\ V = ? & V = 10.0 \text{ L} \end{array}$$

Step 1: Moles Known

$$10.0 \text{ L H}_3\text{PO}_4 \times \frac{12.9 \text{ mol H}_3\text{PO}_4}{1 \text{ L H}_3\text{PO}_4} = 129 \text{ mol H}_3\text{PO}_4$$

Step 2: Moles Unknown

$$129 \text{ mol H}_3\text{PO}_4 \times \frac{2 \text{ mol NH}_3}{1 \text{ mol H}_3\text{PO}_4} = 258 \text{ mol NH}_3$$

Step 3: Volume Unknown

$$258 \text{ mol NH}_3 \times \frac{1 \text{ L NH}_3}{14.8 \text{ mol NH}_3} = \boxed{17.4 \text{ L NH}_3}$$

$$V = \frac{n}{C} = \frac{258 \text{ mol}}{14.8 \text{ mol/L}} = 17.4 \text{ L NH}_3$$