

$$n = ?$$

$$C = 0.2 \text{ M}$$

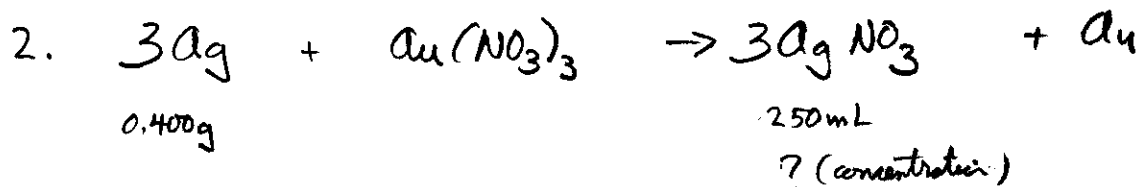
$$V = 450 \text{ mL} \rightarrow 0.450 \text{ L}$$

$$n = CV$$

$$n = 0.2 \text{ mol/L} \times 0.450 \text{ L}$$

$$n = 0.09 \text{ mol Na}_2\text{S}$$

$$0.09 \text{ mol Na}_2\text{S} \times \frac{1 \text{ mol Al}_2\text{S}_3}{3 \text{ mol Na}_2\text{S}} \times \frac{150.15 \text{ g Al}_2\text{S}_3}{1 \text{ mol Al}_2\text{S}_3} = 4.50 \text{ g Al}_2\text{S}_3$$



$$0.400 \text{ g Ag} \times \frac{1 \text{ mol Ag}}{107.87 \text{ g Ag}} \times \frac{3 \text{ mol AgNO}_3}{3 \text{ mol Ag}} = 0.00371 \text{ mol AgNO}_3$$

$$n = 0.00371 \text{ mol}$$

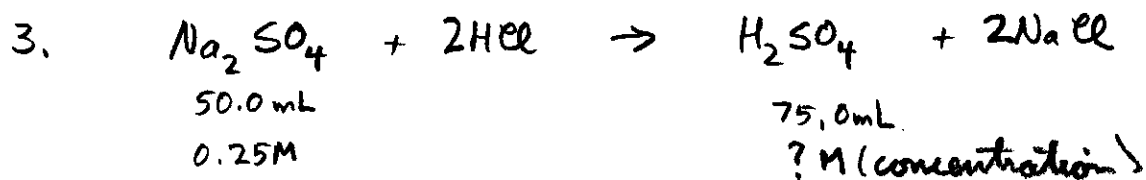
$$C = ?$$

$$V = 250 \text{ mL} \rightarrow 0.250 \text{ L}$$

$$C = \frac{n}{V}$$

$$C = \frac{0.00371 \text{ mol}}{0.250 \text{ L}}$$

$$C = 0.0148 \text{ M}$$



$$n = ?$$

$$n = CV$$

$$C = 0.25 \text{ M}$$

$$n = 0.25 \frac{\text{mol}}{\text{L}} \times 0.050 \text{ L}$$

$$V = 50.0 \text{ mL} \rightarrow 0.050 \text{ L}$$

$$n = 0.0125 \text{ mol Na}_2\text{SO}_4$$

$$0.0125 \text{ mol Na}_2\text{SO}_4 \times \frac{1 \text{ mol H}_2\text{SO}_4}{1 \text{ mol Na}_2\text{SO}_4} = 0.0125 \text{ mol H}_2\text{SO}_4$$

$$n = 0.0125 \text{ mol}$$

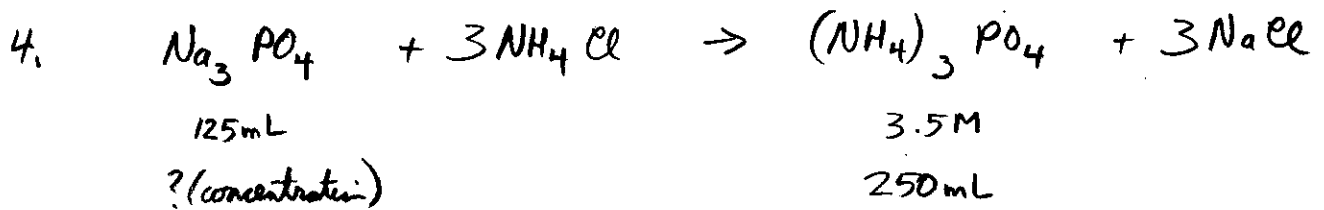
$$C = \frac{n}{V}$$

$$C = ?$$

$$C = \frac{0.0125 \text{ mol}}{0.075 \text{ L}}$$

$$V = 75.0 \text{ mL} \rightarrow 0.075 \text{ L}$$

$$C = 0.167 \text{ M}$$



$$n = ?$$

$$n = CV$$

$$C = 3.5 \text{ M}$$

$$n = 3.5 \text{ mol/L} \times 0.250 \text{ L}$$

$$V = 250 \text{ mL} \rightarrow 0.250 \text{ L}$$

$$n = 0.875 \text{ mol } (\text{NH}_4)_3\text{PO}_4$$

$$0.875 \text{ mol } (\text{NH}_4)_3\text{PO}_4 \times \frac{1 \text{ mol } \text{Na}_3\text{PO}_4}{1 \text{ mol } (\text{NH}_4)_3\text{PO}_4} = 0.875 \text{ mol } \text{Na}_3\text{PO}_4$$

$$n = 0.875 \text{ mol}$$

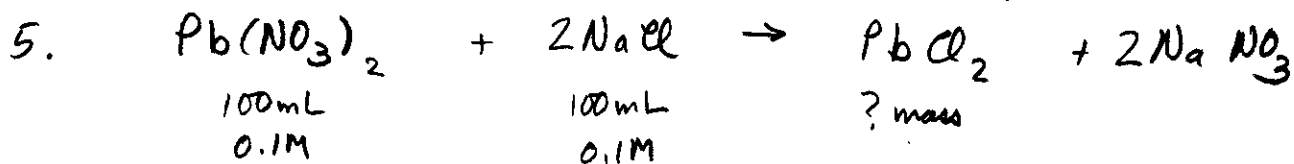
$$C = \frac{n}{V}$$

$$C = ?$$

$$C = \frac{0.875 \text{ mol}}{0.125 \text{ L}}$$

$$V = 125 \text{ mL} \rightarrow 0.125 \text{ L}$$

$$C = 7.0 \text{ M}$$



consider  
Pb(NO<sub>3</sub>)<sub>2</sub>

$$n = ?$$

$$C = 0.1\text{M}$$

$$V = 100\text{mL} \rightarrow 0.1\text{L}$$

$$n = CV$$

$$n = 0.1\text{mol/L} \times 0.1\text{L}$$

$$n = 0.01\text{mol Pb(NO}_3)_2$$

$$0.01\text{mol Pb(NO}_3)_2 \times \frac{1\text{mol PbCl}_2}{1\text{mol Pb(NO}_3)_2} \times \frac{278.10\text{g PbCl}_2}{1\text{mol PbCl}_2} = 2.78\text{g PbCl}_2$$


---

consider  
NaCl

$$n = ?$$

$$C = 0.1\text{M}$$

$$V = 100\text{mL} \rightarrow 0.1\text{L}$$

$$n = CV$$

$$n = 0.1\text{mol/L} \times 0.1\text{L}$$

$$n = 0.01\text{mol NaCl}$$

$$0.01\text{mol NaCl} \times \frac{1\text{mol PbCl}_2}{2\text{mol NaCl}} \times \frac{278.10\text{g PbCl}_2}{1\text{mol PbCl}_2} = 1.39\text{g PbCl}_2 \quad *$$


---

\* the correct answer is 1.39g PbCl<sub>2</sub>

When doing a limiting excess reagent problem, the problem must be done twice - the lowest answer is always the correct one!