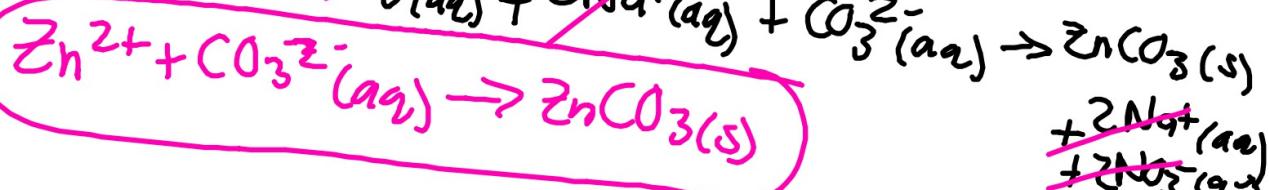
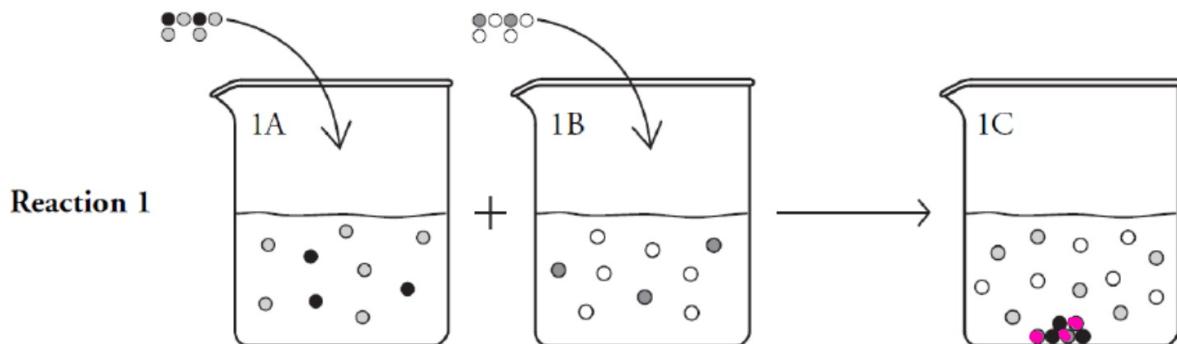
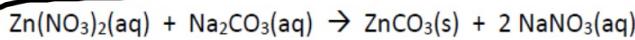
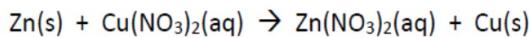
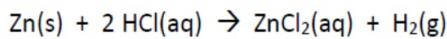


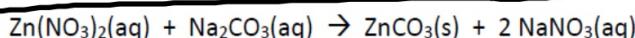
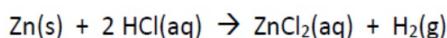
Day 4.4 Warm-Up

1. Choose and write the correct chemical equation for Reactions 1-3. Then write the balanced net ionic equation for each. Finally, identify the limiting reactant, excess reactant, and spectator ions.

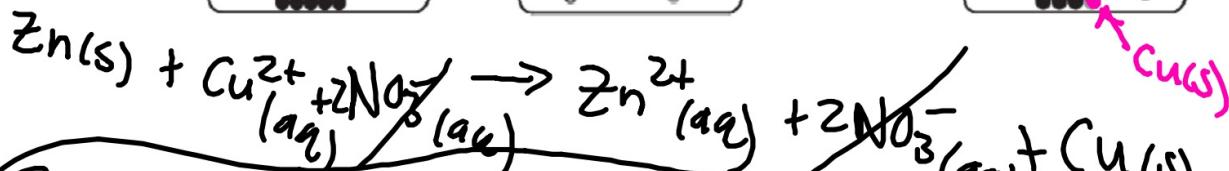
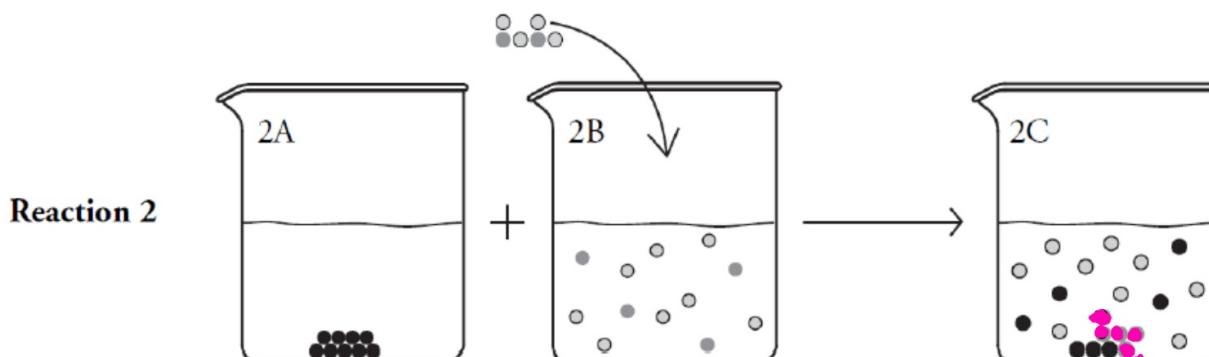


Day 4.4 Warm-Up

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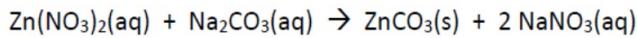
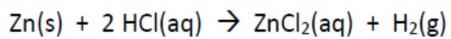


excess: Zn
limiting: Cu(NO₃)₂



Day 4.4 Warm-Up

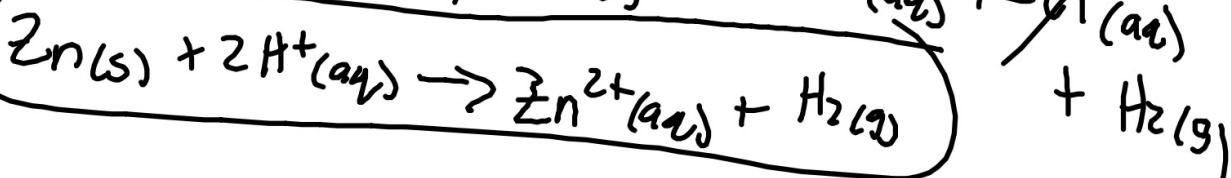
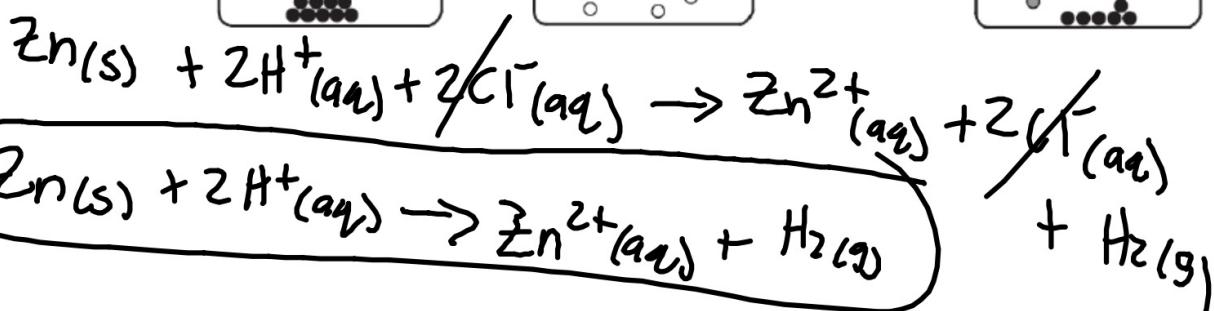
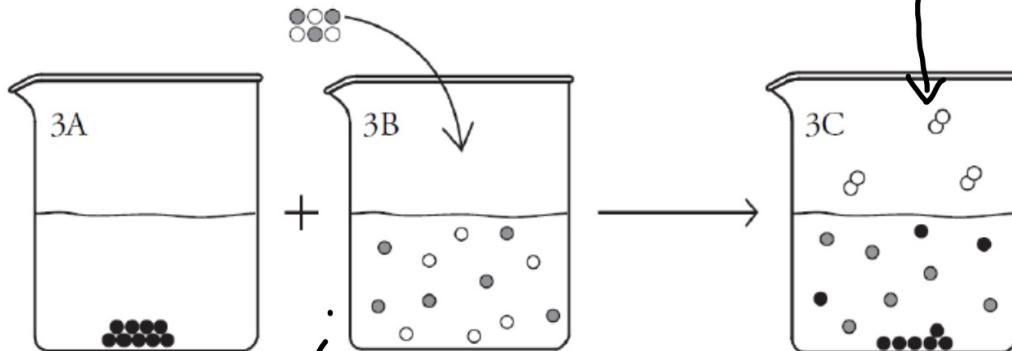
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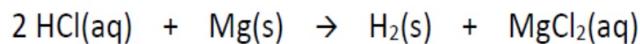
limiting: ~~HCl(aq)~~
excess: Zn(s)

H_2

Reaction 3



2. Given the balanced equation below, how many liters of a 2.00 M HCl solution are required to react completely with 5.00 grams of solid magnesium?



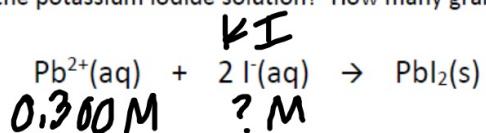
$$\frac{? \text{L}}{2 \text{M}} \quad \frac{5 \text{g}}{}$$

$$\frac{\frac{5 \text{g Mg}}{1 \text{mol Mg}}}{24.31 \text{g Mg}} \times \frac{2 \text{mol HCl}}{1 \text{mol Mg}} = 0.411 \text{ mol HCl}$$

$$2 \text{M HCl} = \frac{0.411 \text{ mol HCl}}{x \text{ L}}$$

$$x = 0.206 \text{ L HCl}$$

3. 10.0 mL of a 0.300 M lead(II) nitrate solution are required to react completely with 25.0 mL of a potassium iodide solution. What is the molarity of the potassium iodide solution? How many grams of solid lead(II) iodide will be produced?



0.300 M Pb(NO₃)₂

$$(0.300 \text{ M } \text{Pb}(\text{NO}_3)_2)(0.01 \text{ L}) = .003 \text{ mol } \text{Pb}(\text{NO}_3)_2$$

$$\frac{0.003 \text{ mol } \text{Pb}(\text{NO}_3)_2}{1 \text{ mol } \text{Pb}^{2+}} = 0.003 \text{ mol } \text{Pb}^{2+}$$

$$\frac{0.003 \text{ mol } \text{Pb}^{2+}}{1 \text{ mol } \text{Pb}^{2+}} \times \frac{2 \text{ mol I}^-}{1 \text{ mol I}^-} \times \frac{1 \text{ mol KI}}{1 \text{ mol I}^-} = 0.006 \text{ mol KI}$$

$$\therefore [\text{KI}] = \frac{0.006 \text{ mol KI}}{0.025 \text{ L}} = \boxed{0.240 \text{ M KI}}$$

$$\frac{0.003 \text{ mol } \text{Pb}^{2+}}{1 \text{ mol } \text{Pb}^{2+}} \times \frac{1 \text{ mol PbI}_2}{1 \text{ mol Pb}^{2+}} \times \frac{461.2 \text{ g PbI}_2}{1 \text{ mol PbI}_2}$$

$$= \boxed{1.38 \text{ g PbI}_2}$$