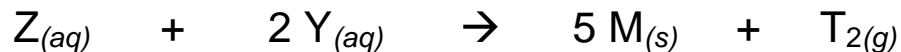


Generic Stoichiometry



Given the following information:

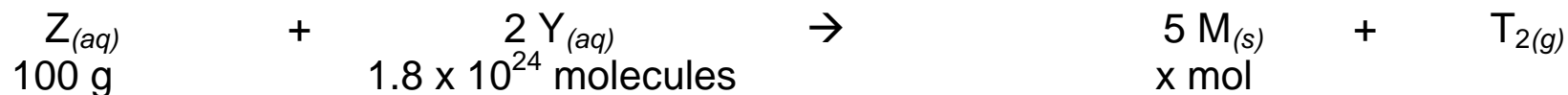
$$Z = 20 \text{ g/mol}$$

$$Y = 10 \text{ g/mol}$$

$$M = 6 \text{ g/mol}$$

$$T = 5 \text{ g/mol}$$

If you combine 100 g of solution Z with 1.8×10^{24} molecules of solution Y; how many moles of M will precipitate out of solution? What volume of T_2 gas will be produced at STP?



$$/ 20 \text{ g/mol}$$

$$/ 6.02 \times 10^{23} \text{ molecules/mol}$$

[2:5]

"Have" 5 mol Z

3 mol Y

"Need" 1.5 mol Z

10 mol Y

[2:1]

$$\text{x mol M} = 1.8 \times 10^{24} \text{ molecules Y} \times \frac{(1 \text{ mol Y})}{(6.02 \times 10^{23} \text{ molecules Y})} \times \frac{(5 \text{ mol M})}{(2 \text{ mol Y})} = \text{mol M}$$

$$\text{x L } T_2 = 3 \text{ mol Y} \times \frac{(1 \text{ mol } T_2)}{(2 \text{ mol Y})} \times \frac{(22.4 \text{ L } T_2)}{(1 \text{ mol } T_2)} = \text{L } T_2$$