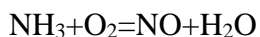
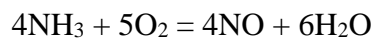


Answer on Question #60915 - Chemistry | General Chemistry

Given the following reactions what mass of water will be formed if you react 2.85g NH₃ with excess O₂



Solution



$$m(\text{NH}_3) = 2.85 \text{ (g)}$$

$$M(\text{NH}_3) = 17.031 \text{ (g/mol)}$$

$$n(\text{NH}_3) = \frac{m}{M} = \frac{2.85 \text{ g}}{17.031 \text{ g/mol}} = 0.1673 \text{ (mol)}$$

The ratio between NH₃ and H₂O is 4:6

$$n(\text{H}_2\text{O}) = n(\text{NH}_3) \cdot \frac{6}{4} = 0.1673(\text{mol}) \cdot \frac{6}{4} = 0.2509 \text{ (mol)}$$

$$M(\text{H}_2\text{O}) = 18 \text{ (g/mol)}$$

$$m(\text{H}_2\text{O}) = M \cdot n = 0.2509 \cdot 18 = 4.5 \text{ (g)}$$

Answer

$$m(\text{H}_2\text{O}) = 4.5 \text{ (g)}$$