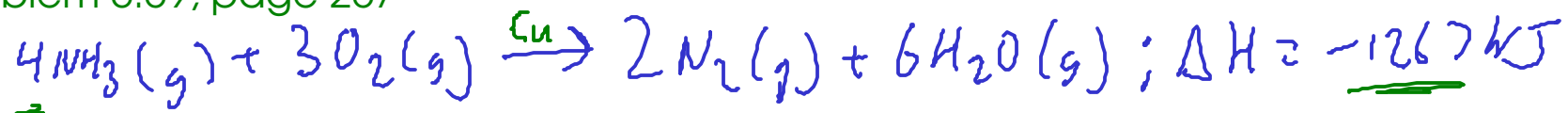


Problem 6.59, page 257



Calculate the enthalpy change on burning 35.8 g ammonia in the above reaction.

- 1 - Find moles of ammonia. Use formula weight of ammonia
- 2 - Change moles of ammonia to enthalpy. Use thermochemical equation.

$$\begin{array}{l} \text{NH}_3: \quad \text{N}: 1 \times 14.01 \\ \quad \quad \quad \text{H}: 3 \times 1.008 \\ \hline \quad \quad \quad 17.034 \text{ g NH}_3 = \text{mol NH}_3 \end{array}$$

$$4 \text{ mol NH}_3 = -1267 \text{ kJ}$$

$$35.8 \text{ g NH}_3 \times \frac{\text{mol NH}_3}{17.034 \text{ g NH}_3} \times \frac{-1267 \text{ kJ}}{4 \text{ mol NH}_3} = \boxed{-676 \text{ kJ} = \Delta H}$$

① ②