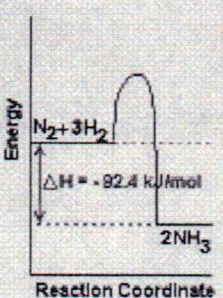
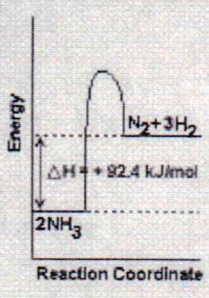


SUMMARY OF KEY IDEAS

Type of Reaction	Exothermic	Endothermic
Energy absorbed or released	Energy is released. Energy is a product of the reaction. Reaction vessel becomes warmer. Temperature inside reaction vessel increases.	Energy is absorbed. Energy is a reactant of the reaction. Reaction vessel becomes cooler. Temperature inside reaction vessel decreases.
Relative Energy of reactants & products	Energy of the reactants is greater than the energy of the products	Energy of the reactants is less than the energy of the products
Sign of ΔH	$\Delta H = H_{(\text{products})} - H_{(\text{reactants})} = \text{negative (-ve)}$	$\Delta H = H_{(\text{products})} - H_{(\text{reactants})} = \text{positive (+ve)}$
Writing the equation	$\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \text{-----} \rightarrow 2\text{NH}_3(\text{g}) + 92.4 \text{ kJ}$ $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \text{----} \rightarrow 2\text{NH}_3(\text{g}) \quad \Delta H = -92.4 \text{ kJ mol}^{-1}$	$2\text{NH}_3(\text{g}) + 92.4 \text{ kJ} \text{-----} \rightarrow \text{N}_2(\text{g}) + 3\text{H}_2(\text{g})$ $2\text{NH}_3 \text{----} \rightarrow \text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \quad \Delta H = +92.4 \text{ kJ mol}^{-1}$
<u>Energy Profile</u>	 <p>Energy of reactants (N_2 & H_2) is greater than the energy of the products (NH_3). Energy is released. ΔH is negative. ΔH is measured from the energy of reactants to the energy of products on the Energy Profile diagram.</p>	 <p>Energy of reactants (NH_3) is less than the energy of the products (N_2 & H_2). Energy is absorbed. ΔH is positive. ΔH is measured from the energy of reactants to the energy of products on the Energy Profile diagram.</p>