

Solutions

Each answer shows the steps, then the **result**.

2.1

- From the reactants up to the peak (transition state)

2.2

- $\Delta H = 40 - 60 = -20$ kJ; exothermic

2.3

- The transition state (the highest-energy point)

3.1 B

- products lower in energy than reactants

3.2

(a)

- $E_a = 150 - 80 = 70$ kJ

(b)

- $\Delta H = 110 - 80 = +30$ kJ, endothermic

3.3

- A catalyst lowers the peak (a smaller E_a , an alternative pathway); ΔH (the reactant-to-product energy difference) is unchanged