

Solutions

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

2.1

- The enthalpy change of a reaction is the same regardless of the path taken

2.2

- Its sign changes

2.3

- -200 kJ

3.1 A

- ΔH is a state function

3.2

(a)

- Add (1) and (2) directly — the 2NO cancels

(b)

- $\Delta H = 180 + (-112) = +68 \text{ kJ}$

3.3

- Keep reaction 1 as is (-394); reverse reaction 2 ($\text{CO}_2 \rightarrow \text{CO} + \frac{1}{2}\text{O}_2$, $+283$); add — CO_2 cancels, leaving $\text{C} + \frac{1}{2}\text{O}_2 \rightarrow \text{CO}$; $\Delta H = -394 + 283 = -111 \text{ kJ}$