Thermochemical Equations - Practice Problems

1. $100\,g \times \frac{1\,mol}{56.08\,g} \times \frac{-65.2\,kJ}{1\,mol} = -116.3\,kJ$ (released)

2. • Endothermic → ENERGY is a reactant
   • +129 kJ

   • $2.24\,mol \times \frac{129\,kJ}{1\,mol} = 289\,kJ$ (absorbed)

3. $12.5\,g \times \frac{1\,mol}{46.07\,g} \times \frac{-1235\,kJ}{1\,mol} = -335.1\,kJ$ (released)

4. Heat of Reaction - enthalpy change as the result of a chemical reaction

   Heat of Solution - enthalpy change as the result of a substance dissolving

5. $2.5\,mol \times \frac{-445.1\,kJ}{1\,mol} = -1112.75 \approx -1113\,kJ$ (released)

6. Reactants, products + enthalpy change.

7. Increase - the process is exothermic as the enthalpy change is negative. This means the system will lose energy and the surroundings (H_2O) will gain energy. This gain of energy will cause the temperature to go up.

8. $4.79\,g \times \frac{1\,mol}{28.0\,g} \times \frac{-1.39 \times 10^3\,kJ}{1\,mol} = -238\,kJ$ (released)