3.1.10 Equilibrium Constant Kp

★ A-LEVEL ONLY — not examined at AS level

3.1.10	*Kp for homogeneous gas-phase systems. Partial pressures, mole fractions. Effect of temperature and pressure on Kp.*

Mole fraction of A = moles of A / total moles of gas.

Partial pressure p(A) = mole fraction × total pressure.

Kp = p(C)■ × p(D)■ / p(A)■ × p(B)■ (partial pressures in atm or Pa).

Only temperature changes Kp. Pressure shifts equilibrium position but NOT Kp. Catalyst does not affect Kp.

Calculate units by substituting pressure units raised to appropriate powers. If Σ(product powers) = Σ(reactant powers), Kp has no units.