

Competition Corner: Audit an Argument

Optional Extension | g10_u09_w35

Use only the fictional cards: 0.80 mol R for $2R \rightarrow S$; fixed-condition kinetics 0.10 to 0.20 M paired with 2.0 to 8.0 rate units; $Q = 3.0$, $K = 1.0$; pH 4.00; and $E_{\text{cell}}^{\circ} = +0.50$ V. Roles are paper labels, not people or performance data.

1. A draft says, "The rate changes by a factor of 4 because concentration doubles." Separate the numerical observation from the unsupported general mechanism claim.
2. Compute the fraction of supplied R represented by the predicted S amount, 0.40/0.80. Explain why the result is an equation-ratio consequence only.
3. Name the role that should check each statement: a mole calculation, a missing-reference concern, and a final boundary sentence.
4. Write the narrowest two-card conclusion using Q/K and pH, with one explicit limit.

Key. 1. The printed pair has a factor-2 concentration change and factor-4 rate change; one pair does not establish a universal mechanism or rate law. 2. 0.50; the 2:1 equation ratio links the printed amounts but does not describe a real reaction outcome. 3. Data analyst, evidence auditor, communicator. 4. Example: $Q > K$ labels the stated mixture reactant-directed and pH 4.00 gives 1.0×10^{-4} M hydronium; neither supplies rate, full solute identity, or a real-world conclusion.