Rate Equations

Order of reaction, and how it is determined.

Chemistry

The rate equation relates rate to reactant concentrations raised to their orders.

$$\text{rate} = k[A]^m[B]^n$$

Zero order in A	Doubling [A] does not change rate
First order in A	Doubling [A] doubles the rate
Second order in A	Doubling [A] quadruples it

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× Taking orders from the stoichiometry

✓ Determining them from rate data

Order reflects the mechanism's slow step, which the overall equation does not reveal.

Overall order is the sum of the individual orders. The rate-determining step contains the species that appear in the rate equation.