

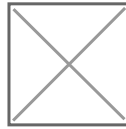
# Math in Clinical Pharmacology

- [Math in Pharmacokinetics](#)
  - [First-Order Elimination Kinetics](#)

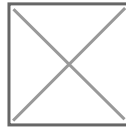
# Math in Pharmacokinetics

# First-Order Elimination Kinetics

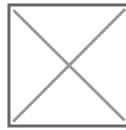
For most drugs, the amount of drug eliminated from the body during any time interval is proportional to the total amount of drug present in the body. In pharmacokinetic terms, this is called first-order elimination and is described by the equation



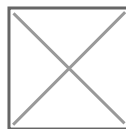
Separating variables:



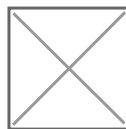
Integrating from 0 to t, where the amount is  $C_0$  to C:



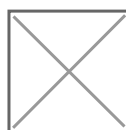
So that:



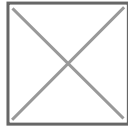
And:



Taking exponential:



It is particularly useful because it can be rearranged in the form of the equation for a straight line to give



There is a real-world example:

