Manual for SOA Exam MLC.
Chapter 3. Life tables.
Section 3.2. Mathematical models.

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Mathematical models

A **mathematical model** is a sketch that represents a problem in a simpler way. A mathematical model is a way to represent certain entity imitating the behavior of the entity. It is a simplified version of a situation in the real world. Mathematical models can serve a critical function in understanding the world, and can often approximate future events based on existing data and quantitative relationships.

Models can be **deterministic** or **stochastic**. Deterministic models assume that it is possible to predict a variable by knowing certain information. A stochastic model allows random variation in the outcome of the variables to be predicted. A stochastic model uses elements of probability theory such as random variables and stochastic processes.