

Mathematical model

Definition. **The mathematical model** is an approximate description of a given class of real phenomenon with the help of mathematical symbolism.

For example: Calculating the volume of petrol in a tank is broken down to a three dimensional integral, motion of a satellite – to a system of differential equations with variable coefficients etc.

It is extremely important for every model to be **adequate**, in other words accurate enough to have an effect on the essence of the modeled phenomenon or process. The adequacy of the model is determined by its performance in the field, with the best criteria for adequacy being the model's ability **to 'predict'** accurately enough the future conditions of the process or phenomenon.

When the model does not provide a sufficiently satisfying solution to what it is tasked with its parameters can be corrected many times and the model itself can change. This sequence of changes in the model is called mathematical modeling.