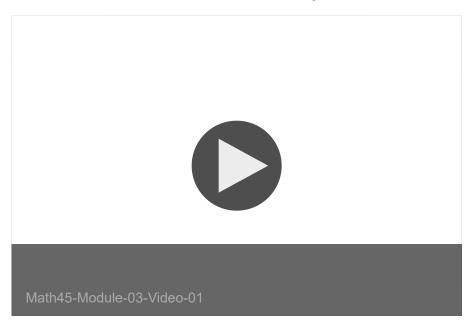# Initial value problems

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Definition:

We call an n-th order DE $F(x, y, y', \ldots y^{(n)}) = 0$ subject to the conditions

$$y(x_0) = y_0, \ y'(x_0) = y_1, \ \ldots, y^{(n-1)}(x_0) = y_{n-1} \qquad (\star)$$

(where $y_0, y_1, \ldots y_{n-1}$ are constants) an n-**th order initial value problem (IVP)** and the relations $(\star)$ the **initial conditions**.

Discussion, comments, and examples:

Math45-Module-03-Video-01

WeBWorK module 03 exercises:

- Problems 1,2

Relevant Wikipedia articles:

- **Definition of an initial value problem (https://en.wikipedia.org/wiki/Initial_value_problem#Definition)**