Separable equations

We are interested in DEs in which we can separate into two functions of different variables.

Definition:

A 1st-order differential equation of the form $\dfrac{dy}{dx} = g(x)h(y)$ is called **separable**.

Here, $g(x)$ is a function of the variable x and $h(y)$ is a function of the variable y (the order does not matter). For example, $y' = yx$ is separable. However, since we cannot 'separate' e^{xy} into a function of x and a function of y, we have $y' = e^{yx}$ is not separable.

Discussion, comments, and examples:

Math45-Module-04-Video-01

WeBWorK module 04 exercises:

- Problems 1

Relevant Wikipedia articles:

- **Separation of variables**   **(https://en.wikipedia.org/wiki/Separation_of_variables)**
- **Inseparable differential equations**   **(https://en.wikipedia.org/wiki/Inseparable_differential_equation)**