

# Solving separable equations

Given a separable equation  $\frac{dy}{dx} = g(x)h(y)$ , we manipulate the expression and write it as  $\frac{1}{h(y)}dy = g(x)dx$ . We then integrate both sides and solve for  $y$ , if possible. If we cannot solve explicitly for  $y$ , then we have an implicit solution.

## Discussion, comments, and examples:



Math45-Module-04-Video-02

### Example 1:



Math45-Module-04-Video-03

Example 2:



Math45-Module-04-Video-04

**WeBWork module 04 exercises:**

- Problems 2, 3

**Relevant Wikipedia articles:**

- [Separation of variables \(https://en.wikipedia.org/wiki/Separation\\_of\\_variables\)](https://en.wikipedia.org/wiki/Separation_of_variables)