

# Solving 1st-order linear equations

With a 1st-order linear differential equation in the form  $\frac{dy}{dx} + Py = Q$ , we turn to a discussion about how to solve such a differential equation, *in general*.

## Discussion and comments:

We do this in the following video. However, we note that this initial discuss, which is important for motivation and concept, will be challenging to understand in a first take.

--insert video

With a general theory discussed--as well as a brief roadmap on how to apply it--we turn to an example.

## Discussion, comments, and examples:



Math45-Module-05-Video-02

## WeBWork module 05 exercises:

- Problems 3, 4

## Relevant Wikipedia articles:

- [Using an integrating factor to solve 1st-order linear DEs](https://en.wikipedia.org/wiki/Integrating_factor#Solving_first_order_linear_ordinary_differential_equations)  
([https://en.wikipedia.org/wiki/Integrating\\_factor#Solving\\_first\\_order\\_linear\\_ordinary\\_differential\\_equations](https://en.wikipedia.org/wiki/Integrating_factor#Solving_first_order_linear_ordinary_differential_equations))