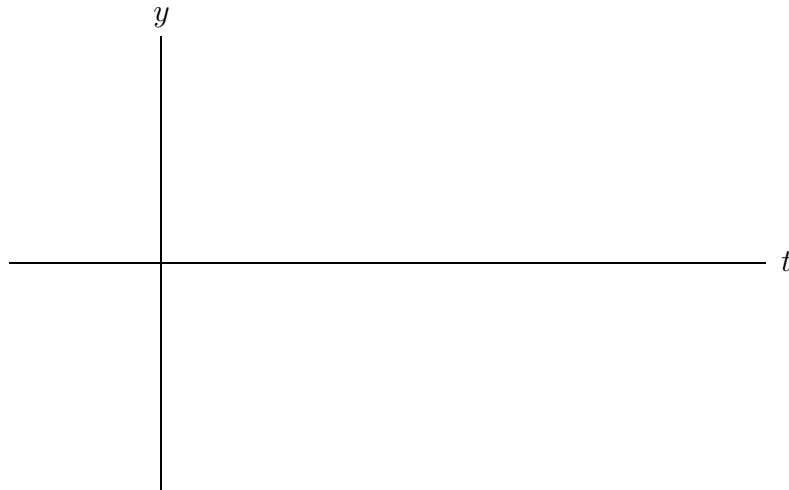


One more general point left over from last class:

5. Even relatively simple looking differential equations can have solutions that cannot be expressed in terms of functions that we already know and love.



Our general approach in this course:

We will study differential equations

1. using the theory and
2. various techniques:
 - (a) analytic techniques
 - (b) geometric/qualitative techniques, and
 - (c) numerical techniques.

Main topic for today: Separable Differential Equations (an analytic technique)

First let's recall the method of substitution for calculating integrals (really antiderivatives):

A differential equation

$$\frac{dy}{dt} = f(t, y)$$

is separable if it can be written in the form

$$\frac{dy}{dt} =$$

Example. Consider the differential equation

$$\frac{dy}{dt} = -2ty^2.$$

We turn to `HPGSolver` to get a sense of the graphs of these solutions:

