

MAT 239 (Differential Equations), Prof. Swift
Worksheet 4 on Separation of Variables

1. Find the “general solution” to the ODE $y' = 2xy^2$, using separation of variables.

This is not, technically, the *general* solution because the solution $y = \text{---}$ is missing.

2. Using the general solution you just found, solve the IVP

$$y' = 2xy^2, \quad y(0) = 1.$$

After finding the particular solution, sketch the solution and fill in the blanks.

The interval of existence of this particular solution is $\text{---} < x < \text{---}$.