

Exercise sheet 8 for Math 263: ODEs for Engineers Matt Roberts
11th March 2012

1. Find one solution to $y'' + (x + 2)y' - y = 0$ by trial and error. Now find another solution by reduction of order.
2. Find the general solution to $y'' + (x + 2)y' - y = \ln x$.
3. Calculate the inverse Laplace transform of

$$\frac{s}{(s - 1)(s^2 - 4s + 8)}.$$

4. Solve

$$y' - y = e^{2t}(\sin 2t + \cos 2t), \quad y(0) = 0$$

by using Laplace transforms.

If you spot any errors, please inform me: matthew.roberts@mcgill.ca