

MIT OpenCourseWare  
<http://ocw.mit.edu>

18.034 Honors Differential Equations  
Spring 2009

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.

## 18.034 Recitation: February 19th, 2009

1. Find the rest solution to

$$y'' - y = 4 \sin t.$$

Do the same for

$$y'' - y = 4e^t.$$

2. Show that the equation

$$(3e^{2y}x^{\frac{2}{3}} - x)y' = 1$$

becomes an equation of Bernoulli type if  $x$  and  $y$  are interchanged. Solve that equation and obtain an equation for  $x$ . Find an explicit formula for  $y = y(x)$  for the solution satisfying  $y(1) = 0$ .

3. Solve

$$2t^2y'' + (y')^3 = 2ty'.$$

4. Solve

$$y'' + (y')^2 = 2e^{-y}.$$

5. Solve

$$y'' + 7y' + 12y = 0$$

subject to the initial conditions  $y(0) = 1$ ,  $y'(0) = 4$ .