

Millersville University
Department of Mathematics

Name _____

MATH 365, *Ordinary Differential Equations*, Homework 06
October 13, 2008

Find the solutions to the following ODEs and IVPs. Answers without justifying work will receive no credit. Partial credit will be given as appropriate, do not leave any problem blank. Each problem is worth 10 points. Your completed assignment is due at class time on Wednesday, October 15, 2008.

1. $y'' + 9y = \csc 3t$

2. $y'' - y = e^{-t^2}, y(0) = 1, y'(0) = -1$

3. $y'' + 3y' + 2y = 3e^{-2t} + t$

4. $y'' + y' + 9y = t^2 e^t$

5. $y'' + y' - 2y = \ln t$

6. Show that $y = c_1t^2 + c_2t$ is a complementary solution of

$$t^2y'' - 2ty' + 2y = te^{-t}.$$

Find the general solution to this nonhomogeneous ODE.