INTRO DIFFERENTIAL EQUATIONS

Midterm Exam 1

Monday, November 3, 2008 — 9:00 am - 9:50 am

Problem	1	2	3	4	evaluation form	Σ
Points						

Student's name:

Problem 1.

Find a general solution of the equation

$$(\sin t + y)\frac{dy}{dt} + y \cos t - t^2 = 0$$

Problem 2.

Find the solution of the initial value problem

$$t\frac{dy}{dt} + t^2 + ty - y = 0, \quad y(1) = 0.$$

Problem 3.

Find a general solution of the equation

$$y'' - 2y' + y = \frac{e^t}{t}$$

What second order linear homogeneous differential equation with constant coefficients has a solution $y(t) = e^{2t} \sin 4t$?