MATH 361 EXAM 2, Spring 2012

	Name:

1. Solve the equation: $2y'' - 3y' + y = 0$,

Ans:_____.

2. Are the functions $y_1 = e^{-2t}$ and $y_2 = te^{-2t}$ linearly independent? Explain.

Ans:_____.

3. Solve the equation: $y'' - 4y = 0$, $y(0) = 0$ and $y'(0) = 6$.

Ans:_____.

4. Use Euler's formula to write the given expression in the for $a + ib$.

a) $e^{2-i\pi/4}$

Ans:_____.

b) x^{2i}

Ans:_____.

5. Find the Wronskian of the two solutions of the differential equations:

a) $x^2 y'' + xy' + (x^2 - n^2)y = 0$ (Bessel's equation.)

Ans:_____.

b) $(1 - x^2)y'' - 2xy' + n(n+1)y = 0$ (Legendre's Equation.)

Ans:_____.

	Name:
6.	Find the general solution of $y'' - 2y' + 10y = 0$ Ans:_____ .
7.	Solve the equation: $y'' - 2y' - 3y = 4e^{2t}$ Ans:_____ .
8.	Given that $y_1 = t$ is a solution $t^2 y'' + 2ty' - 2y = 0$, find another $l.i.$ solution Ans:_____ .
9.	Write a suitable undetermined coefficient form for the particular solution of: a) $y''' - 16y' = 5te^{-4t} + 5t^2$ a) _____ . b) $(D^2 + 9)^2 y = 3t\sin(3t)$ b) _____ .
10.	Solve by variation of parameters (See Pb. 7): $y'' - 2y' - 3y = 4e^{2t}$ Ans:_____ .