MATH 361 EXAM 3, Fall 2011

	Name:
1.	Determine the radius of convergence of the power series $\sum_{n=0}^{\infty} \frac{(-1)^n (x+2)^n}{(n+6)4^n}$ Ans:_____.
2.	Find the first four terms of a power series solution of $y'' + xy' + 2y = 0$, about $x_0 = 0$. Ans:_____.
3.	Determine a lower bound for the radius of convergence of the solutions of the differential equation $(1 + x^2)y'' + 2xy' + 4x^2y = 0$, about a) $x = 0$; b) $x = 2$. Ans: a)_____ b)_____.
4.	Solve the equation: $x^2y'' - 3xy' + 4y = 0$ Ans:_____.
5.	Solve the equation: $x^2y'' + 3xy' + 5y = 0$ Ans:_____.

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6.	Determine and classify the singular points of the equation $x^2(1-x)y'' + (x-1)y' + 5y = 0$. Ans:_____.
7.	Solve by Laplace transforms: $y'' - y' - 2y = 0$ with initial conditions $y(0) = 0$, $y'(0) = 1$. Ans:_____.
8.	Find the inverse Laplace transform of $F(s) = \dfrac{2}{(s-1)^3} + \dfrac{2}{s^2+2s+2}$. Ans:_____.
9.	Find the inverse Laplace transform of $F(s) = \dfrac{2s+1}{s^2-2s+2}$. Ans:_____.
10.	Solve by Laplace transform: $y'' - 2y' + 10y = \delta(t-2)$; with $y(0) = 0$, $y'(0) = 0$. Ans:_____.
	Extra space