MATH 162 EXAM 2, Spring 2007

Show work! No work, no credit.	Name:	Score	
1.	a) Show that $y = Ce^{x^2/2}$ is a solution of $y' = xy$. b) Find the solution to $y' = xy,\ \ y(0) = 4$ Ans:_____.	1	
		2	
		3	
		4	
		5	
		6	
2.	Solve the differential equation $y' = x(y^2 + 1),\ \ y(1) = 2$. Ans:_____.	7	
		8	
		9	
		10	
		Tot	
3.	Use Euler's method with $h = 0.1$ to estimate of $y(0.3)$, where y is the solution of: $y' = y - 2x,\ \ y(0) = 1$. Ans:_____.		
4.	Solve the linear equation of problem (3): $y' = y - 2x,\ \ y(0) = 1$. Compute $y(0.3)$. y(t)=_____. y(0.3)=_____.		
5.	Draw a qualitative graph of the solution of $y' = y(y^2 - 9)$ with the given condition: a) $y(0) = 2.5$. b) Write a sentence explaining how you got the answer		
	Extra Space		

Part II.	Name:
6.	The half life of Cesium-137 is 30 years. How much remains of a 200 gm sample after 80 years? Ans:_____.
7.	A homeless man in Boston buys a cup of coffee on a day when the temperature is 10^oF. The coffee is at 200^oF but after 5 minutes it has cooled to 180^oF. What will be the temperature of the coffee after 10 minutes? Ans:_____.
8	Solve: $y'' + 5y' - 24y = 0$. Ans:_____.
9.	Solve: $y'' + 36y = 0, \;\; y(0) = 5, \;\; y'(0) = 0$ Ans:_____.
10.	Solve: $y'' + 4y' + 13y = 0$ Ans:_____.