

MATH 162 EXAM 2, Fall 2006

Show work! No work, no credit.		Name:	Score	
1.	a) Show that $y = 1/(C - x)$ is a solution of $y' = y^2$.	b) Find a solution to $y' = y^2$, $y(0) = 1$	1	
			2	
			3	
			4	
			5	
			6	
		Ans:_____.		
2.	Solve the differential equation $(\ln y)y' = xy$.		7	
			8	
			9	
			10	
			Tot	
		Ans:_____.		
3.	Solve the initial value problem $\frac{dy}{dx} = -6xy$, $y(0) = 4$.			
		Ans:_____.		
4.	A culture of E. coli bacteria cells doubles every 20 minutes. The initial population has 60 cells. What will be the population after 2 days?			
		Ans:_____.		
5.	Carefully draw a qualitative graph of the solution of $P' = 4P(1 - \frac{P}{600})$ with the given conditions			
	a) $P(0) = 100$.	a) $P(0) = 400$.		
Extra Space				

Part II.	Name:
6.	<p>The temperature T of a turkey placed in an oven at 375°F is given by the model $T' = k(375 - T)$. Initially (at 2:00 pm) the turkey was at 50°F and after 2 hours it was at 125°F. To kill all the bacteria in the stuffing the turkey must reach 180°. When will the turkey be done?</p> <p style="text-align: right;">Ans: _____.</p>
7.	<p>Solve: $\frac{dy}{dx} + 2xy = x^2$.</p> <p style="text-align: right;">Ans: _____.</p>
8	<p>Solve: $y'' + 2y' - 15y = 0$.</p> <p style="text-align: right;">Ans: _____.</p>
9.	<p>Solve: $y'' + 25y = 0$, $y(0) = 0$, $y'(0) = 6$</p> <p style="text-align: right;">Ans: _____.</p>
10.	<p>Solve: $y'' + 2y' + 5y = 0$</p> <p style="text-align: right;">Ans: _____.</p>