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Math 211
Lecture 2

Spring 03/04
G.Meyer

Exam 3

Your Name: _____

Your TA: _____

Problem	Points	Score
1	8	
2	10	
3	6	
4	6	
5	8	
6	6	
7	6	
Total	50	

1. Suppose a continuous income stream is being deposited in an account at the variable rate of $1,000t$ dollars per year for a period of 10 years, where t is the time in years. If the account pays an annual interest rate of 6%, compounded continuously, what is its present value?

2. a Find $\int \sqrt{5x+1} dx$.

b Find $\int \frac{1}{x^2-8x+7} dx$.

3. The marginal cost function for producing x units of a certain product is given by the function $MC(x) = \frac{1}{4}x + 5000$. If the cost of producing 20 units is \$ 50,000, then determine the cost function $C(x)$.

4. Using integration by parts, find $\int_1^e t^3 \ln t dt$.

5. Determine whether $f(x) = \frac{x^2-1}{x^2+1}$ has a global maximum or minimum on the interval $(-\infty, \infty)$, and if so, where it occurs, and what its value is.

6. Find the equation of the tangent plane to the graph of the function $f(x, y) = -xy$ at the point $(1, -1)$.

7. Solve the initial value problem $dy/dx = (x + 1)/y$ and $y(2) = 4$.