

Name _____

Student ID # _____

Class Section _____

Instructor _____

Math 1100
Fall 2006

EXAM I

Dept. Use Only Exam Scores		
Problem	Points	Score
1.	20	
2.	20	
3.	20	
4.	20	
5.	20	
	TOTAL	

Show all your work and make sure you justify all your answers.

Math 1100
practice Exam

1. Find $\frac{dy}{dx}$ for three of the four problems below. (If you do not clearly indicate which two you want graded I reserve the right to give you a zero score.)

(a) $y = e^{x^7+x} \ln(x^2)$

(b) $y = \ln(\ln(x^3 + 1)) + e^{e^{x^2+1}}$.

(c) $y - \ln(xy) + (x^2 + 1)^3 e^{y^2+1} - x + 10 = 0$

(d) $\ln(x^2y + x) + (y^2 + 1)^3 e^{x^2+1} - 10x + 10 = 0$

2. Integrate three of the four problems below. (If you do not clearly indicate which two you want graded I reserve the right to give you a zero score.)

(a) $\int (x^3 + 1)e^{x^4+4x+4}dx$

(b) $\int x(x - 1)^{\frac{1}{2}}dx$

(c) $\int \frac{x^2}{(x^3+4)\ln(x^3+4)}dx$

(d) $\int \frac{1}{1+e^{-3x}}dx$

3. Find the definite integral for two of the three problems below. (If you do not clearly indicate which two you want graded I reserve the right to give you a zero score.)

(a) $\int_1^5 \frac{x^2}{x^3+4} dx$

(b) $\int_0^5 |x - 2| dx$

(b) $\int_{-5}^5 e^{x^5} - e^{-x^5} dx$ (Hint show this is an odd function. What do you know about an odd function on a symmetric interval?) Justify your answer.

4. Answer one of the two problems below. (If you do not clearly indicate which two you want graded I reserve the right to give you a zero score.)

(a) Find consumer and producer surplus given demand function $D(x) = -x^2 + 10$ and supply function $S(x) = .1x + 2$.

(b) Find the area bounded by the curves $f(x) = 3x^3 - x^2 - 10x$ and $g(x) = -x^2 + 2x$

5. Given that your marginal cost is $50 - .8x$ and marginal revenue is $10x + 50$ find your profit function given that when you produce no units you make no profit. Find how much profit you make when you produce ten units by expressing this as a definite integral (what does the definite integral represent?).