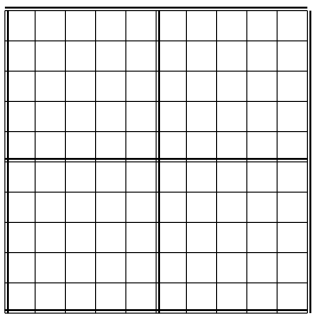
MATH 111 EXAM 3, Fall 2004

Show all work!	Name:	Score	
1.	a) Find: $\log_3(1/27)$. Ans:_____. b) Simplify: $3\ln e^{-x}$. Ans:_____. c) Find: $\log(0.01)$. Ans:_____. d) Simplify: $3^{4\log_3 x}$. Ans:_____.	1	
		2	
		3	
		4	
		5	
		6	
		7	
2.	a) Solve for x: $3^{4x+1} = 9^{x-4}$. Ans:_____. b) Solve for x: $4e^{5x} = 7$. Ans:_____.	8	
		9	
		10	
		Tot	
3.	a) Compute: $\log_8 24$. Ans:_____. b) Compute $f(5)$ if $f(x) = \dfrac{4.3}{3.7 - e^{0.2x}}$. Ans:_____.		
4.	a) Write as a single log: $5\ln x - (1/2)\ln(x+4)$. Ans:_____. b) Graph: $y = \log_3 x$. (Label at least 3 points.) 		
5.	a) Solve: $3^x = e^{x+4}$. Ans:_____. b) Solve: $2\log_{1/3} x = -4$. Ans:_____.		
	Extra Space		

Name:

6. Peter deposits \$8,000 in a savings account at 5.3% compounded continuously.

a) What is the balance after 3 years?

Ans:_____.

b) In how many years will the balance be \$24,000?

Ans:_____.

7. Solve: $\log_3(2x-1)+\log_3(x-2)=3$.

Ans:_____.

8. The population y (in ten thousands) of a bacteria over a period of 8 hours is shown below.

t	0	1	2	3	4	5	6	7	8
y	2.2	2.4	3.8	5.1	6.8	9.1	12.4	13.6	18.2

a) Fit an exponential curve. Is this a god fit? Why?

Ans:_____.

b) Estimate the population after 12 hours.

Ans:_____.

9. Solve the given system of equations:

$2x+3y=-5$

$5x-2y=16$.

Ans:_____.

10. Solve the given system of equations:

$3x-y=2$

$x^2+y^2=4$.

Ans:_____.

Extra Space