Math 120B
Final Exam (Part 2)
August 19, 2005

Name: _____

Student ID: _____

1. Your exam contains 2 questions and 3 pages; Please make sure you have a complete exam.
2. The entire exam is worth 40 points. Point values for problems vary and these are clearly indicated. You have 1 hour for this exam.
3. Make sure to ALWAYS SHOW YOUR WORK; you will not receive any partial credit unless all work is clearly shown. If in doubt, ask for clarification.
4. If you need extra space, use the back page of the exam and clearly indicate this.
5. You are allowed one 8.5×11 sheet of handwritten notes (both sides). Graphing and scientific calculators are allowed.

Problem	Total Points	Score
1	15	
2	15	
Total	30	

1. (15 pts.) Solve the following.

   (a) (10 pts.) Find α so that the area between the lines $y = 4$, $y = x - 4$, and $y = \alpha x + 4$ forms a triangle of area 24.

$\alpha =$ _____

   (b) (5 pts.) Let $f(x) = -2x^2 + 5x - 8$. Find $\frac{\text{f(x+h)}-\text{f(x)}}{\text{h}}$ and simplify as much as possible.

$\frac{\text{f(x+h)}-\text{f(x)}}{\text{h}} =$ _____

2. (15 pts.) Let $f(x) = |1 - e^{2x}|$ and

$$g(x) = \begin{cases} -1 & \text{for } x < -2 \\ 1/2 & \text{for } -2 \leq x \leq 0 \\ ln(x) & \text{for } x > 0. \end{cases} \tag{1}$$

(a) (5 pts.) What is $g(f(\frac{1}{2}) - 3)$?

$g(f(\frac{1}{2})-3)=$_____

(b) (10 pts.) Write a multipart rule for $f(g(x))$ and sketch a graph on the given axis below.