Math 142, Exam 2, Fall 2010

Write everything on the blank paper provided. **You should KEEP this piece of paper.** If possible: return the problems in order (use as much paper as necessary), use only one side of each piece of paper, and leave 1 square inch in the upper left hand corner for the staple. If you forget some of these requests, don't worry about it – I will still grade your exam.

The exam is worth 50 points. SHOW your work. $\boxed{CIRCLE}$ your answer. **CHECK** your answer whenever possible.

No Calculators or Cell phones.

1. (6 points) Define the definite integral. Give a complete definition. Be sure to explain all of your notation.

2. (6 points) Find $\int_0^3 \frac{dx}{x-1}$.

3. (6 points) Find $\int e^x \cos x dx$. Check your answer.

4. (6 points) Find $\int \frac{1}{(x-2)(x^2+4)} dx$. Check your answer.

5. (6 points) Find the limit of the sequence whose n^{th} term is $a_n = (1 + \frac{2}{n})^n$.

6. (6 points) Find the volume of the pyramid whose base is a square with side L and whose height is h .

7. (7 points) Consider the region bounded by $x = y^2$ and $y = x - 6$. Revolve the region about $y = -3$. Find the volume of the resulting solid.

8. (7 points) Find $\int \sin^3 x \cos^4 x dx$. Check your answer.