Math 142, Exam 1, Fall 2012

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.

The solutions will be posted later today.

1. (7 points) Define the definite integral. Give a complete definition. Be sure to explain all of your notation.

2. (7 points) State both parts of the Fundamental Theorem of Calculus. Be sure to explain all of your notation.

3. (7 points) Find $\displaystyle\int \frac{e^{\frac{1}{x}}}{x^2}\,dx$. **Check your answer.**

4. (7 points) Find $\displaystyle\int (\ln x)^2\,dx$. **Check your answer.**

5. (7 points) Find $\displaystyle\int \sin 8x \cos 5x\,dx$.

6. (7 points) Find $\displaystyle\int \frac{dx}{\sqrt{x^2+16}}$. **Check your answer.**

7. (8 points) Find $\displaystyle\int \sqrt{5+4x-x^2}\,dx$. **Check your answer.**