

# Math 102 Fall 2008 Exam 1

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Wednesday, October 1, 2008

*Instructions:* This is a closed book, closed notes exam. Use of calculators is not permitted. You have **fifty minutes**. Do all 5 problems. Please do all your work on the paper provided. You must show your work to receive full credit on a problem. An answer with no supporting work or explanation will receive little to no credit.

Please print your name clearly here.

Print name: \_\_\_\_\_

Upon finishing please sign the pledge below:

On my honor I have neither given nor received any aid on this exam.

\_\_\_\_\_

Grader's use only:

1. \_\_\_\_\_ /10

2. \_\_\_\_\_ /10

3. \_\_\_\_\_ /10

4. \_\_\_\_\_ /10

5. \_\_\_\_\_ /10

1. [10 points]

Compute the integral

$$\int \ln x dx.$$

2. [10 points]

Compute the integral

$$\int x^3 \sqrt{1-x^2} dx.$$

3. [10 points]

Compute the integral

$$\int \frac{x^2 + 1}{(x + 1)(x^2 + 2x + 3)} dx.$$

4. [10 points] Determine whether or not the following integral converges. If it converges find its value. If it diverges to  $\pm\infty$  indicate which one.

$$\int_0^1 \frac{\cos x}{\sin x} dx.$$

5. [10 points]

Compute the integral

$$\int \frac{1}{\sin \theta} d\theta.$$