Name:_____

Student ID:_____

Section:_____

Instructor:_____

Math 2414 (Calculus II)
Practice Exam 2

Instructions:

- Work on scratch paper will not be graded.
- Show all your work in the space provided. Full credit will be given only if the necessary work is shown justifying your answer.
- **Please write neatly. If I cannot read your handwriting, you will not receive credit.**
- Simplify your answers as much as possible. Expressions such as $\ln(1)$, e^0, $\sin(\pi/2)$, etc. must be simplified for full credit.

Show all work in the space provided. Full credit will be given only if all steps are shown justifying your answer. Please write neatly and carefully, if I cannot read your handwriting, you will receive NO credit.

1. (10 points) Find the given integral (show all work).

$$\int \frac{\cos^3(x)}{\sqrt{\sin(x)}} dx.$$

2. (10 points) Find the given integral (show all work).

$$\int_{\pi/6}^{\pi/3} \sin(6x)\cos(4x) dx.$$

3. (10 points) Find the given integral (show all work).

$$\int_0^3 \frac{x^3}{\sqrt{x^2+9}} dx.$$

4. (10 points) Find the given integral (show all work).

$$\int \frac{x}{\sqrt{x^2+6x+12}} dx.$$

5. (10 points) Find the given integral (show all work).

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

6. (10 points) Find the given integral (show all work).

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

7. (10 points) Explain why the integral is improper and evaluate it.

$$\int_1^\infty \frac{\ln x}{x} dx.$$

8. (10 points) Explain why the integral is improper and evaluate it.

$$\int_0^3 \frac{1}{x^2-6x+5} dx.$$

END OF EXAM