

Your name: _____

Rec. Instr.: _____

Rec. Time: _____

Show all your work in the space provided under each question. Please write neatly and present your answers in an organized way. You may use your one sheet of notes, but no books or calculators. This exam is worth 60 points. The chart below indicates how many points each problem is worth.

Problem	1	2	3	4
Points	/15	/7	/8	/7
Problem	5	6	7	Total
Points	/8	/7	/8	/60

1. (a) Use the substitution $u = x^2 - 1$ to evaluate the integral.

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

- (b) Use the trigonometric substitution $x = \sec(\theta)$ to evaluate the integral.

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

2. Evaluate the integral.

$$\int \tan^2(5x) \, dx$$

3. Use a trigonometric substitution to evaluate the integral.

$$\int \frac{dx}{(x^2 + 4)^2}$$

4. Use integration by parts twice to evaluate the integral.

$$\int x^2 \sin(3x) \, dx$$

5. Evaluate the integral.

$$\int \sin^5(x) \cos^3(x) \, dx$$

6. Evaluate the definite integral.

$$\int_1^e \frac{(\ln(x))^2}{x} dx$$

7. Evaluate the integral.

$$\int \frac{\ln(x)}{x^2} dx$$