

Math 125D - Autumn 2001
Second Exam
November 20, 2001

Name _____

1	10	
2	10	
3	20	
4	20	
5	10	
6	20	
7	10	
Total	100	

- Complete all questions.
- You may not use electronic calculation devices during this examination.
- Show all work for full credit.
- You have 50 minutes to complete the exam.

1. Consider the region bounded by $y = x(x - 1)^2$ and the x -axis. Find the volume of the solid created by revolving this region about the y -axis.

2. Evaluate the limit. If you use L'Hospital's rule, be sure to indicate where.

$$\lim_{x \rightarrow 0} \frac{1 - \cos 3x}{e^x - 1 - x}$$

3. Evaluate the integrals.

(a) $\int \cos x \ln(\sin x) dx$

(b) $\int e^x \sin x dx$

4. Evaluate the integrals.

(a) $\int \sin^2 x \cos x \, dx$

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

5. Evaluate the integral.

$$\int x^3 \sqrt{x^2 + 4} dx$$

6. Evaluate the integrals

(a)
$$\int \frac{6}{x^3 + x^2} dx$$

(b)
$$\int \frac{x^3 + 6x^2 + 10x + 2}{x^2 + 6x + 10} dx$$

7. Evaluate the integral.

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