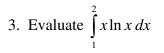
MA 126 Test 2 Spr 10			1
Calculus II Test 1A		NAME	
100 points	No notes, no calculators.	Spring, 2010	

PART 1. Part 1 consists of 9 questions. Show your work and clearly mark your final answer in the space provided. (6points each)

1. If
$$F(x) = \int_{2}^{x} e^{t^{2}+1} dt$$
, find $F'(x)$.

2. Evaluate the definite integral $\int_{-3}^{3} \sqrt{9-x^2} dx$ by interpreting it in terms of area.



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

5. Evaluate
$$\int_{1}^{e} \frac{1}{6x} dx$$

6. Evaluate
$$\int \frac{1}{x^2 - 1} dx$$

MA 126 Test 2 Spr 10

7. Evaluate
$$\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$$
.

8. Write out the terms of the Riemann sum M_4 with n = 4 and using the midpoint rule in order to approximate $\int_{1}^{3} \frac{1}{x} dx$. You do not need to actually compute and add the terms in the sum.

9. Find the average value of $f(x) = \frac{x}{x-1}$ over the interval [2, 4].

<u>Part 2.</u> Part 2 consists of 4 problems. Problems 1 through 3 are worth 10 points each. Problem 4 is worth 16 points. Show all your work for full credit! Displaying only the final answer (even if correct) without the relevant steps is not enough.

1. Evaluate $\int x^2 \sin x \, dx$

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

- 3. A particle moves along a line with velocity function $v = t^2 t$, $t \ge 0$, where v is measured in meters per second.
 - a. Find the change in position, i.e. the displacement, over the time interval [0, 3].

b. Find the distance traveled by the particle during the time interval [0, 3].

4. Evaluate the following integrals.

a.
$$\int \frac{\cos^2 x - \sin x}{\cos x} dx$$

b. $\int \sin^4 x \cos^3 x \, dx$

c. $\int \sec^4 x \tan x \, dx$