

MATH 227: Calculus II
SAMPLE MIDTERM I

Spring 2009

NAME :

NOTE: There are 5 problems on this midterm (total of 6 pages). Use of calculators to check your work is permitted; however, in order to receive full credit for any problem, you must show work leading to your answer. You have 50 minutes to complete this test.

Problem	Possible points	Score
1	20	
2	20	
3	20	
4	20	
5	20	
Total	100	

Problem 1. (20pts) Evaluate the following integrals

(a) $\int_0^1 \frac{dx}{(4-x^2)^{3/2}}$

(b) $\int_0^\pi x \sin x \, dx$

Problem 2. (20pts) Evaluate the following integral

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

Problem 3. (20pts) Find the volume of the solid obtained by rotating the region bounded by the given curves about the x -axis:

$$y = x^2, \quad x = 2, \quad y = 0$$

Problem 4. (20pts) Use Simpson's rule with $n = 6$ subintervals to approximate

$$\int_1^3 \frac{\ln x}{x} dx$$

(Keep 4 decimal places in your work.)

Problem 5. (20pts) Find the area of the region shared by the circles $r = 1$ and $r = 2 \sin \theta$.

