

Name: \_\_\_\_\_ PID: \_\_\_\_\_

TA: \_\_\_\_\_ Sec. No: \_\_\_\_\_ Sec. Time: \_\_\_\_\_

**Math 10B.**  
**Midterm Exam 2**  
**February 26, 2007**

*Turn off and put away your cell phone.*

*You may use any type of calculator, but no other electronic devices during this exam.*

*You may use one page of notes, but no books or other assistance during this exam.*

*Read each question carefully, and answer each question completely.*

*Show all of your work; no credit will be given for unsupported answers.*

*Write your solutions clearly and legibly; no credit will be given for illegible solutions.*

*If any question is not clear, ask for clarification.*

| #                          | Points | Score |
|----------------------------|--------|-------|
| <b>1</b>                   | 10     |       |
| <b>2</b>                   | 8      |       |
| <b>3</b>                   | 4      |       |
| <b>4</b>                   | 4      |       |
| <b><math>\Sigma</math></b> | 26     |       |

1. (a) (3 points) Find  $LEFT(2)$  and  $RIGHT(2)$  for  $\int_0^4 (x^2 + 1) dx$ .

(b) (2 points) For each approximation: is it an underestimate or overestimate? Explain your answers.

(c) (3 points) Find  $MID(2)$  and  $TRAP(2)$  for  $\int_0^4 (x^2 + 1) dx$ .

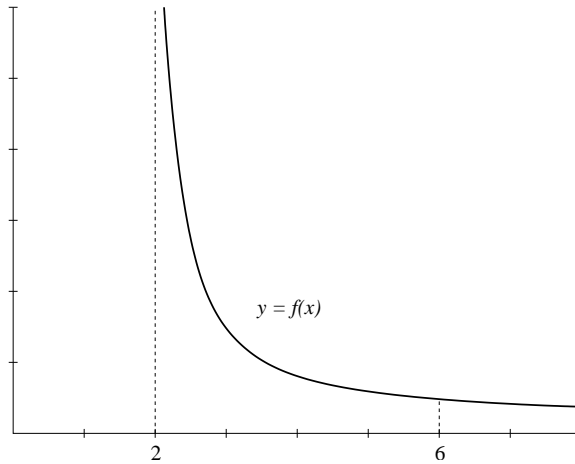
(d) (2 points) For each approximation: is it an underestimate or overestimate? Explain your answers.

2. (8 points) Evaluate the following indefinite integrals.

(a)  $\int x^3 \ln(x) dx$

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

3. (4 points) Let  $f(x) = \frac{1}{\sqrt{x-2}}$ . Is the area under the graph  $y = f(x)$  and between  $x = 2$  and  $x = 6$  finite? If so, compute its value; if not, explain why it is not.



4. (4 points) The velocity of a car after  $t$  hours is given by  $v(t) = \frac{50t}{\sqrt{t^2 + 9}}$  miles per hour. Compute how many miles the car travels in the first 4 hours.