Math 152
Exam 2
February 27th, 2008

Name: _____

1. Your exam contains 3 questions and 4 pages. Please make sure you have a complete exam.
2. The entire exam is worth 50 points. Point values vary and these are indicated on each problem. You have 50 minutes for this exam.
3. Make sure to **ALWAYS SHOW YOUR WORK**; you will not receive any partial credit unless all work is clearly shown. If in doubt, ask for clarification.
4. If you need extra space, use an extra sheet and staple it to the back of the exam and clearly indicate this.
5. You are allowed **one** 8.5×11 sheet of handwritten notes (both sides) and a calculator.
6. Leave **answers in <u>exact form</u>** (as **simplified** as possible).
7. Put a $\boxed{\text{box around your final answer}}$ where applicable.

Problem	Total Points	Score
1	14	
2	14	
3	22	
Total	50	

1. (14 pts.) Let R = the region bounded by $y = 5\ln(x)$ and the x-axis from $x = 1$ to $x = e$.

   Find the volume of the solid obtained by revolving R about the x-axis.

2. (14 pts.) A particle is moving along a straight line with the velocity function $f(t) = 2 + \dfrac{3t^2+12t+13}{t^2+4t+3}$ in **meters/second** at t seconds.

   Find the average velocity over the time interval $[0, 5]$. Include units.

3. (22 pts.) Evaluate the following integrals.

(a) (11 pts.) $\int \left(\frac{e^{2x}}{\sqrt{4-e^{2x}}} + x\right) dx$

(b) (11 pts.) $\int \frac{\tan^{10}(t)}{7\sec^{13}(t)}\, dt$