

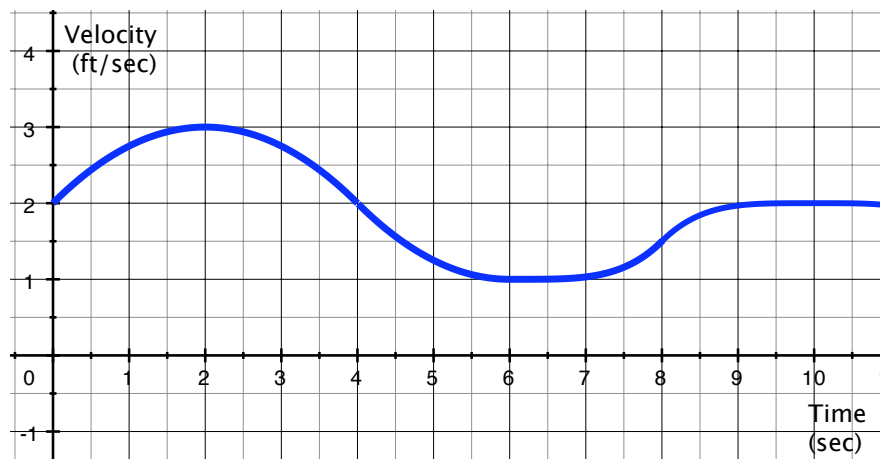
Math 152
Exam 1
January 30th, 2008

Name: _____

1. Your exam contains 5 questions and 4 pages; Please make sure you have a complete exam.
2. The entire exam is worth 100 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 exact form** (as **simplified** as possible).
7. Put a box around your final answer where applicable.

Problem	Total Points	Score
1	12	
2	14	
3	46	
4	18	
5	10	
Total	100	

1. (12 pts.) The following is a graph of the velocity of a happy porcupine.



Approximate the distance traveled by the porcupine between 2 and 10 seconds by using 4 right-end rectangles. (Include **units** in your answer.)

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2. (14 pts.) Find a function $f(x)$ such that $f'(x) = \sin(2x) + e^2$ with $f(0) = 2$.

3. (46 pts.) Evaluate the following:

(a) (12 pts.) $\int (2e^x + \frac{3}{x} - \sqrt[3]{x}) dx$

(b) (12 pts.) $\int_0^4 |2t - 4| dt$

(c) (14 pts.) $\int_1^4 \frac{dx}{\sqrt{x}(1 + \sqrt{x})^2}$

(d) (8 pts.) $\sum_{i=2}^4 (-1)^i \cdot (3 + i^2)$

4. (18 pts.) Find the area of the region bounded by $x = \frac{1}{2}y^2$ and $x = 8$.

5. (10 pts.) Consider the function $h(x) = \int_1^{\tan(x)} (\ln(t) + 4) dt$. Find the slope of $h(x)$ at $x = \frac{\pi}{4}$.