

Name: _____ PID: _____

TA: _____ Sec. No: _____ Sec. Time: _____

Math 10B.
Midterm Exam 1
January 29, 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.

1. Find the general antiderivative of each of the following functions.

(a) (2 points) $f(x) = x^5 - 2x^2 + 3$

(b) (2 points) $f(x) = (2x + 1)^2$

(c) (2 points) $f(x) = 2\sqrt{x} - \frac{5}{x}$

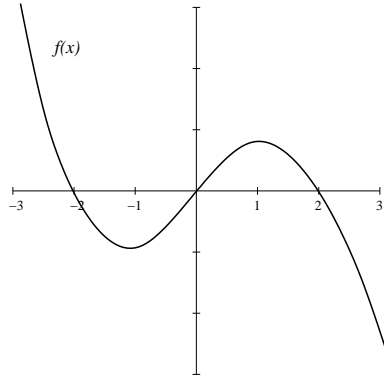
#	Points	Score
1	6	
2	4	
3	4	
4	6	
Σ	20	

2. (4 points) The following table gives the velocity of an airplane as it took off from a runway. If the airplane lifted off the runway after 5 seconds, what are the minimum and maximum distances the airplane could have covered on the runway?

Time (sec)	0	1	2	3	4	5
Velocity (feet/sec)	0	10	30	50	70	90

3. (4 points) Compute the area under the graph $y = 3 \sin(x)$ between $x = 0$ and $x = \pi$.

4. The graph of a function $f(x)$ is shown below.



Let $F(x)$ be an antiderivative of $f(x)$, that is, $F'(x) = f(x)$.

(a) (2 points) At which value(s) of x does $F(x)$ have a local maximum? Be sure to indicate how you arrived at your answer(s).

(b) (2 points) At which value(s) of x does $F(x)$ have a local minimum? Be sure to indicate how you arrived at your answer(s).

(c) (2 points) Which is larger, $F(0)$ or $F(1)$? Be sure to indicate how you arrived at your answer.