## MAT 123: Introduction to Calculus

## Exam 1, Spring 2007

Wednesday, February 21, 8:30pm - 9:30pm

Directions: Do not turn this page over until you are directed to do so. Please fill in your name and your Stony Brook ID number on the lines below. Please then circle the recitation/evening lecture you belong to in the chart below. There are a total of 4 pages to this exam, not including the cover sheet. Be sure to have all of them. There are four questions on this exam. Point values for each question are shown in brackets to the right of the question number. There are 100 possible points one can earn on this exam. You may not leave the exam room until $9: 00 \mathrm{pm}$ at the earliest. You may not use a calculator or any other electronical device for this exam. You may not consult any outside resources, including fellow test-takers, notes, and textbooks. You will also not receive any information from the proctors regarding the wording of any of the exam questions.

Name: $\qquad$ Student ID\#: $\qquad$

| RECITATION | TimE | PlaCE | LEADER |
| :---: | :---: | :---: | :---: |
| REC 01 | M 11:45am-12:40pm | Physics P117 | Grigoryan, Suren |
| REC 02 | Th 9:50am-10:45am | Library N3063 | Kifle, Hagos |
| REC 03 | Tu 11:20am-12:15pm | Physics P123 | Vigilante, Richard |
| REC 05 | W 11:45am-12:40pm | Library N4000 | Wertz, Deb |
| REC 08 | M 3:50pm- 4:45pm | Library N3063 | Agcaian, Peter |
| REC 09 | Th 9:50am-10:45am | Physics P117 | Cheng, Jonathan |
| REC 10 | Tu 11:20am-12:15pm | Library N3063 | Ionas, Radu |
| REC 12 | M 11:45am-12:40pm | Lt Engineering 154 | Weng, Luoying |
| REC 13 | W 11:45am-12:40pm | Lt Engineering 154 | Weng, Luoying |
| REC 14 | Th 11:20am-12:15pm | Library N3063 | Vigilante, Richard |
| REC 15 | Th 11:20am-12:15pm | Earth and Space 181 | Ionas, Radu |
| ELC 90 | TuTh 6:50pm-8:10pm | Physics P118 | Bianculli, Nicholas |


| QUESTION | $1(\mathrm{a})$ | $1(\mathrm{~b})$ | $1(\mathrm{c})$ | $1(\mathrm{~d})$ | $1(\mathrm{e})$ | $1(\mathrm{f})$ | $1(\mathrm{~g})$ | $1(\mathrm{~h})$ | $1(\mathrm{i})$ | 2 | 3 | 4 | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POSSIBLE PTS | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 10 | 10 | 100 |
| PTs AWARDED |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. [72 points total, 8 points for each part] A correct final answer here will receive full credit provided that the answer is completely correct (i.e., with no sign error or any other error) even if no work is shown. Any error will result in 0 points in each part unless coherent, relevant work and/or explanation is shown. Find the exact value of each of the following. Do not approximate irrational numbers. Place your final answer in the answer line to the right of the question. This is the only final answer that will be graded.
(a) $\tan \pi$
(a)
(b) $\operatorname{Arcsin}\left(-\frac{\sqrt{3}}{2}\right)$
(b)
(c) $\sec \left(-\frac{2 \pi}{3}\right)$
(c)
(d) $\cot \left(\frac{\pi}{6}\right)$
(d)

Question 1 continued. Directions are on the previous page.
(e) $\operatorname{Arctan}(-1)$
(e)
(f) $\csc \left(225^{\circ}\right)$
(f)
(g) $\sec \left(\operatorname{Arcsin}\left(\frac{2}{3}\right)\right)$
(g)
(h) $\sin \left(-450^{\circ}\right)$
(h)
(i) $\operatorname{Arccos}\left(\frac{1}{2}\right)$
(i)
2. [8 points] Graph one cycle of

$$
f(x)=-3 \cos (7 \pi x)
$$

on a scaled set of axes.

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3. [10 points] Solve the following equation for $x$ where $0 \leq x<2 \pi$.

$$
2 \cos ^{2} x=\cos x
$$

4. [10 points] Find all solutions (i.e., find the general solution) to the equation $\sin ^{2} x=\frac{3}{4}$.
