Math 120
Practice Exam 5
(Generated from Loveless Fall 2008 + Fall 2009 + Conroy Winter 2010)

Name _____

Student ID #_____

Section _____

HONOR STATEMENT

"I affirm that my work upholds the highest standards of honesty and academic integrity at the University of Washington, and that I have neither given nor received any unauthorized assistance on this exam."

SIGNATURE:_____

- This exam consists of four pages of questions and a blank scratch page.
- You will have 50 minutes.
- You may use a Ti-30x IIS calculator and one hand-written 8.5×11 in sheet.
- Show your work. Answers with no supporting work may receive no credit.
- Leave answers in exact form or round to three decimals unless noted.
- Do not write within 1 cm of the edge (exams are scanned).

GOOD LUCK!

Fall 2009 Loveless Exam 2 Problem 4 (modified rounding instruction)

1. The human population of the city of Boom is growing exponentially. Let x be the years since 2000 and $B(x)$ be the human population of Boom. In 2000 ($x = 0$), the population was 1250. The population doubles every 5 years.

   (a) When will the population reach 15,000? **Round your answer to the nearest year.**

   (b) The population of deer in Boom is decreasing exponentially. In 2003 ($x = 3$), the deer population was 9000. In 2006 ($x = 6$), it was 8000. When will there be twice as many people as deer? **Round to the nearest year.**

Fall 2008 Loveless Exam 2 Problem 1

2. Bob is training so that he will be able to eat as much pie as possible on Thanksgiving. The number of slices of pie he can eat, y, is a linear-to-linear rational function of the days, x, that he trains.

   If Bob trains for 10 days, he can eat 5 slices. If Bob trains for 20 days, he can eat 6 slices. As Bob trains more and more, the number of slices he can eat approaches (but does not exceed) 8 slices.

   How many days would Bob need to train to eat 7 slices on Thanksgiving? **Round to the nearest day.**

Winter 2010 Conroy Exam 2 Problem 4

3. Let $h(x) = \dfrac{3x}{x-3}$ and $j(x) = \dfrac{x}{x+1}$. Define $f(x) = h\big(j(x)\big)$.

   (a) Find $f(x)$.

   (b) Find $f^{-1}(x)$.

Fall 2009 Loveless Exam 2 Problem 3

4. (a) The rear wiper blade on a station wagon is 16 inches long and mounted on a 22 inch arm, 6 inches from the pivot. It sweeps through 105° (convert to radians). Find the area swept clean.

(b) If $f(x) = 3x + c$ and $f(f(x)) = 9x - 10$, find c.

(c) Find the inverse of $f(x) = \dfrac{(\sqrt{x} - 1)^2}{3}$ on the domain $0 \leq x \leq 1$.