Math 126 Calculus I Homework Week III Tinsley

Instructions: The same rules apply. In particular, your write-ups should include an indication of how you arrive at your solution.

You may use a graphing calculator or the computer on these exercises. Always try to minimize the amount of paper used. Of course, you may use a computer just to check your work on any homework exercise. **However, clearly indicate the source of all computer work**.

Each assignment is due at 4:00 PM on the indicated day. You may turn in an assignment one day late and incur a 10% penalty.

Monday, Week 3: Midterm exam

Tuesday, Week 3
Reading: Nothing new
Exercises: None due

Wednesday, Week 2
Reading: finish sections 4.3, 4.5; section 4.6 (consists of a set of examples); 4.9
Exercises:

(4.3) 15, 17, 20
(4.4) 3, 5, 6, 7, 9
(4.5) 1, 3, 10
(4.6) 1, 3, 5
(4.9) 1, 3, 5, 7, 13, 15, 19, 25, 31, 32, 35

Thursday, Week 3:
Reading: read sections 4.7-4.8
Exercises:

(4.4) 10, 15, 19, 23, 25
(4.5) 11, 15, 27
(4.6) 2, 7, 9(from class), 10, 13, 16
(4.9) 41, 43, 45, 47, 51, 59

Friday, Week 3:
Reading: sections 5.1, 5.2(up to 'Properties of Definite Integrals, 5.6(up to Change of Variables Formula)
Exercises:

(2.6) 19, 21, 24
(4.7) 3, 7, 8, 12, 29
(4.8) 1, 3, 5, 6, 9

Monday, Week 4:
Reading: finish section 5.2; sections 5.3, 5.4(p. 331-2), 5.5; finish section 5.6
Exercises:

(5.1) 1, 3, 6, 9, 10, 13, 15, 19
(5.2) 1, 3, 7, 11, 13, 19, 27
(5.6) 1, 3, 5, 7, 10, 19, 20

Tuesday, Week 4:
Reading: finish section 5.4; sections 5.5, 5.7(up to 'Integrals Involving b^x), 5.8
Exercises: (those marked with # will be discussed in class and at the problem session (Tuesday afternoon)

(5.3) 1, 3, 5, 11, 20#, 23, 37, 41, 45
(5.4) 7, 9, 15, 16#, 23
(5.5) 1, 5, 18#
(5.6) 24#, 25, 33, 35, 43, 79, 84, 87
(5.7) 1, 3, 13, 16#
(5.8) 1, 9, 13

Extra Credit: Due Wednesday of Week 4 at 1:00 PM. Turn this into the instructor separate from any regular assignment.

Extra Credit Problems: You may consult only materials from class. These are due by 1:00 PM on the last day of the course.

E. (One of my favorites) The minute hand on a watch is 8 mm long and the hour hand is 4 mm long. How fast is the distance between the tips of the hands changing at one o'clock? (hint: the cosine law might help here)

F. Consider the function $f(x) = sec(x)$ for either $0 \le x < \pi/2$ or $\pi \le x < 3\pi/2$. Show that with the given restriction of the domain, f has an inverse f^{-1} and $\frac{d}{dx} f^{-1}(x) = \frac{1}{x\sqrt{x^2-1}}$. In other words by changing the domain restriction on $sec(x)$ from what did in class (and what was done in the text), we obtain a sec^{-1} whose derivative formula avoids the use of an absolute value.