

Homework #5: Sections 7.5 and 7.6

Complete each question below. Answers should be carefully written up, showing all necessary work for each step to complete each problem. Your turned-in work should be neat and legible. If I cannot understand or follow your work you will not get credit for it. You may discuss these problems with myself, the TAs and Math Center tutors, and your classmates, but once you start writing up the problem to turn in, you must complete the write-up on your own. This assignment is out of **33 points**. It is due at the **start of class on Tuesday, October 6**.

1. (10 points) Complete problem 6 in Section 7.5 of the book.
2. (10 points) Suppose that you borrow \$15,000 to buy yourself a car. The bank is charging 6% interest, compounded continuously. What should your monthly payment be in order to pay the car off in 5 years? In full sentences, without doing the calculations to get an exact answer, explain how your answer would be affected if the bank charged 6% interest compounded monthly, instead.
3. (7 points) Use a triangle identity to find the derivative of $\csc^{-1}(x)$.
4. (8 points) Find the domain and range of the function $f(x) = \sin^{-1}(e^x)$. Find its derivative. Sketch a graph of the function.