Homework 3 for Math 053 Calculus II.

Fall 2008

General guidelines: It is very important that you complete the homework assignments to fix the ideas discussed in class and textbook. It is for your benefit to be able to assess your understanding of the material by working out homework problems. If you need help solving the problems you are welcome to come to my office during my office hours and I will be happy to help you work them out. Homework assignments will not be collected.

When you solve the exercises try to write down all your work. That is the way you will be asked to do it in the tests. You are encouraged to work in groups.

Homework 3: Try to do these problems in the order in which they are assigned.

Problems from section 5.4: 1, 2, 7, 8, 17, 18, 25, 26, 39, 41, 42, 47.

Review from Calculus I: Derive the following formulas step by step:

1. \[
\frac{d}{dx}(\tan^{-1} x) = \frac{1}{1 + x^2}
\]

2. \[
\frac{d}{dx}(\cos^{-1} x) = -\frac{1}{\sqrt{1 - x^2}}
\]

More problems from section 5.4: 51, 52, 53, 55, 61, 62 and 63.


Problem: A Corolla moves on a straight road with velocity function \(v_a(t) = t^2 - t\) and a Civic moves along the same road with velocity function \(v_c(t) = t^2 - 12\), where \(v\) is measured in meters per seconds. Answer the following questions:

1. Which car traveled further in the first 10 seconds?

2. Which car traveled further during the 3rd interval of 15 seconds?

Problems from section 5.5: 3, 6, 13, 14, 19, 26, 39, 44, 49, 54, 57, 77, 79 and 81.