Math 1010 - Calculus I
Maple Assignment #4
DUE: Thur Feb 24, in Recitation

The purpose of this assignment is to give you practice in carrying out derivatives of various types of functions.

In the last assignment, we found the derivative using Maple by using the D command. Maple can find the derivative of very complicated functions, which would be difficult for us to do by hand. You are going to find the derivative of a variety of functions, using the rules we are learning for finding derivatives, and then check your answers with Maple.

EXERCISES

For each of the functions below, a) find the derivative of the function by hand (leave space in your Maple printout to write this in), b) find the derivative using Maple (verify that they are the same), and c) find the value of the derivative at the point given (using Maple).

1. \( f_1(x) = 3x^2 - 2x + 3 \) at \( x=0 \)

2. \( f_2(x) = 1/\sqrt{x^2 + 3x} \) at \( x=2 \)

3. \( f_3(x) = (5x^3)/(4x^2 + 1) \) at \( x=1 \)

4. \( f_4(x) = 3xe^x + x^3 \) at \( x=3 \)

5. \( f_5(x) = 5x^4 \ln x \) at \( x=2 \)