MATH 113 – MAPLE ASSIGNMENT 1 – DUE 31 MAY 2007

Answer all of the following questions. You may work in groups of no more than three persons to complete this assignment. One copy of the completed assignment is to be turned in for each group. **Each member of the group must sign the assignment.**

You are expected to turn in a printout of a MAPLE worksheet containing the MAPLE commands and output that you used to complete the assignment. You must also include text explaining what you are doing (this can be typed onto the MAPLE worksheet or written by hand on the printout). Include any hand calculations.

This assignment is due by the beginning of class on Thursday 31 May 2007. **No late assignments will be accepted under any circumstances whatsoever.** If you are not finished with the assignment by the due date, you should turn in what you have for partial credit. You may turn in the assignment early if you wish.

(4 pts. each)

1. Define the function $f(x) = x^3 + \dfrac{5}{x^2}$ as a MAPLE procedure and plot the graph of this function using the MAPLE `plot` command in the horizontal viewing window `x=0.5..4`.

2. Use MAPLE to find the *average rate of change* of the $f(x)$ from Problem 1 on the intervals $[2, 3]$, $[2, 2.5]$ and $[2, 2.1]$. Use the MAPLE `limit` command to find the instantaneous rate of change of $f(x)$ at $x = 2$.

3. Use the instantaneous rate of change you found in Problem 2 to find the equation of the tangent line to the graph of $f(x)$ at $x = 2$. Plot this tangent line and $f(x)$ on the same set of axes using the same horizontal viewing window as in Problem 1.