Spring 2011

MA 22000 – Topics List

I. Evaluating a function when the input is not numeric
• For example: $(f(x+\Delta x)–f(x))/\Delta x$

II. Composition of functions

III. Finding limits
• Using a table
• From a graph
• By direct substitution
• By factoring and canceling
• In the definition of derivative (limit of a difference quotient)

IV. Finding values where function is not differentiable
• Using a graph

V. Using derivative rules
• Power rule
• Product rule
• Quotient rule
• General power rule (chain rule)

VI. Applications using the derivative
• Finding the slope/equation of a tangent line; finding point(s) where slope of a tangent line has a given value
• Finding the rate of change of a function
• Finding a marginal function and its use in estimating actual change
• Finding velocity
• Finding the value of a derivative at a given point

VII. Applications not using the derivative
• Finding the y-value of a point
• Finding the average rate of change
• Finding the actual change
• Estimating the slope of a graph at a point using a grid
• Estimating the average rate of change and rate of change of a function using a grid

VIII
• Lines in the plane and slope