Math 1, Fall 2003
Goals for Week 2: September 29 - October 3, 2003

Quadratic Functions: You should know the general form of a quadratic function and the names for each of its terms. You know how to find the values of x where a quadratic function is zero, and, in particular, you should know the quadratic formula.

Graphs of Quadratic Functions: You should know the shape of all quadratic functions. You should know that the graphs of all quadratic functions have an axis of symmetry, and you should know how to find that axis of symmetry given the formula for the function. You should be familiar with how the shape of the graph of a quadratic function changes as we change a, b, and c. You should know that every quadratic function has either a maximum or a minimum. You should know how to determine whether a quadratic function has a maximum or a minimum, and how to find that maximum or minimum.

Tangent Lines: You should have an intuitive understanding of what the tangent line to the graph of a function at a point is. You should know the name of the slope of that tangent line, and, for quadratic functions, you should know a formula for that slope. Given a quadratic function and a point $x = p$, you should know how to find the equation for the tangent line to the graph of that quadratic function at that point.

Derivatives in General: You should know that the derivative of a function at a point is a general concept. You should know a method by which you can approximate the tangent line to the graph of a function at a point, and you should be aware that you can approximate the derivative of a function at a point using that method. You should be able to draw a picture of this method at work, with the important points on the graph labelled.

Cubic Functions: You should know the general form of a cubic function. You should know that the graphs of cubic functions come in three basic forms, and you should be able to sketch these basic forms accurately. You should know what a local maximum is and what a local minimum is.

Derivatives of Cubic Functions: You should know a formula for finding the derivative of a cubic function at a point. Given a cubic function at a point $x = p$, you should know how to find the equation for the tangent line to the graph of that cubic function at that point.

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Lecture Notes for Week 2: Lectures 3 and Lecture 4

Homework for Week 2: Homework 3 and Homework 4