1077-K5-2801   **Peter J. Byers*** (`pbyers@bu.edu`). *Tangent lines: a multifaceted concept.*

Over the last few decades, math education has increasingly emphasized making connections between different topics. Thus, a key part of improving teaching is improving connections and deciding which connections are most important. In a Calculus or Pre-Calculus class, tangent lines can be connected with each of the following topics:

• Tangent lines to circles, as taught in 10th grade Geometry

• High school velocity and rate problems

• Graphing calculators

• Double roots of polynomials

• Continuous functions and limits

• Derivative as a number and as a function

• Exponential functions (including problems in interest, population growth, radioactive decay, etc.)

• Advanced topics such as inverses, linear approximation, and the chain rule for compositions of functions

This presentation will consider what changes can be made in order to teach these connections more effectively, and particularly how tangent lines to exponential functions can be treated with geometric (non-calculus based) techniques like scaling. It will conclude by considering the success of such changes thus far. (Received September 22, 2011)