

MIT 18.01 Single Variable Calculus, Fall 2007

This paper is not written by Massachusetts Institute of Technology (as they couldn't write such sh🌻t). This is simply a short summary of lectures made by me for me.

Lecture 1. What Is a Derivative

In school in math classes we faced the function term. Function is a way of converting some value x to y . Speaking about function description we can characterize *limits* of our function etc. But we can also describe some “speed” (this word wasn't used in lecture, but I heard it in DeepLearningAI course) of function changing at each point. This is a derivative.

Let's graph some function, and draw a tangent line of some point with coordinates (X_0, Y_0)

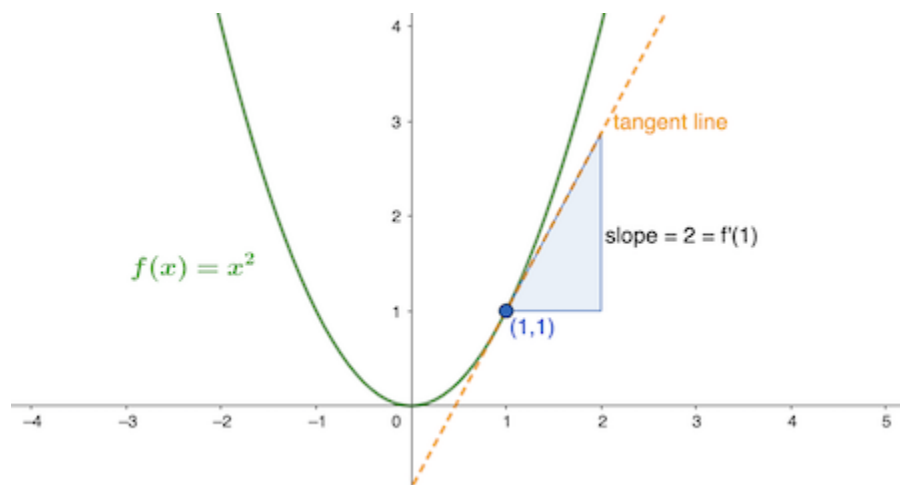


Image stolen from the web (Drawing 1.1)

Now this orange tangent line displays how our function grows.
Derivative can be written in many ways, but here I'll use Leibniz notation

$$dy/dx$$

It's also known as “rise over run”