In calculus, we often think of the function and its graph as being the same object. So, to study functions, we often study their graphs.

In the last segment, we learned that the derivative at a point is the slope of the tangent line to the graph through that point. But when our graph is nice and smooth, without any discontinuities, corners, or other weird behavior, we can find the slope of the tangent line at any point.

Use the derivative function applet below to approximate the derivative using the tangent line approximation at all of the points marked using the sliders below. Do you notice any patterns? Press the “show derivative" button to display the actual values at the sliders, as well as for each point in between.













































