

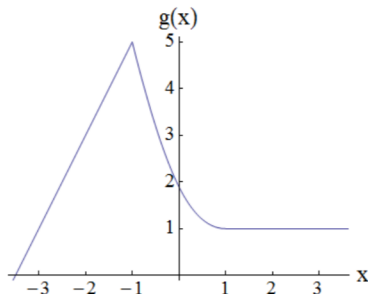
Summary: Derivative as a function

Recall secant and tangent lines

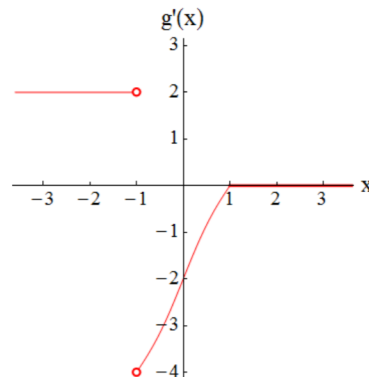
In calculus, we often think of the function and its graph as being the same object. So to study functions, we often study their graphs.

Recall: 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. Thus we can think of the derivative of a function as a function.

Example: The graph of a function and its derivative



The graph of a function $y = g(x)$



The graph of the derivative $y = g'(x)$