Workshop 5 extra problem (this is required):

In the graph from today's workshop there were several instances were a straight line met a curved line at a sharp point and the function was not differentiable at that point. Give an example of a piecewise defined function that is a line for $x \leq 1$ and a quadratic for $x \geq 1$ where the derivative exists at x = 1.

Bonus (not required):

Find a piecewise defined function that is a quadratic for $x \leq 1$ and a cubic for $x \geq 1$ such that both the first *and* second derivatives are defined at x = 1.