

Procedure for Sketching $f'(x)$ from $f(x)$

- 1) Identify points $x=a$ where $f'(a) = 0$. Remember, zero slope ($f'(a) = 0$) corresponds with peaks and valleys in the original graph.
- 2) Identify points $x=a$ where $f'(a)$ does not exist. These correspond to cusps (aka corners), discontinuities (jumps in the original graph), or infinite slopes (i.e. vertical tangent lines, which will have a dashed line to signify).
- 3) Estimate derivatives everywhere else by determining whether the graph is increasing/decreasing, which corresponds to positive/negative derivatives, respectively. Note, if the original graph looks like a straight line, the corresponding derivative graph must be drawn as a horizontal line (why?).