

More practice with the $\varepsilon - \delta$ definition of the derivative

(1) Let $f(x) = |x|$.

(a) Use the $\varepsilon - \delta$ definition of the derivative to show that if $x_0 > 0$, then $\frac{df}{dx}(x_0) = 1$.

(b) Use the $\varepsilon - \delta$ definition of the derivative to show that $\frac{df}{dx}(0)$ does not exist.