

Abbott: 5.3.7, 5.3.8

5.3.7 A *fixed point* of a function f is a value x where $f(x) = x$. Show that if f is differentiable on an interval with $f'(x) \neq 1$, then f can have at most one fixed point.

5.3.8 Assume f is continuous on an interval containing zero and differentiable for all $x \neq 0$. If $\lim_{x \rightarrow 0} f'(x) = L$, show $f'(0)$ exists and equals L .