16.2 [1D9] Let $f : \mathbb{R} \to \mathbb{R}$ be continuous and differentiable, and $a, b \in \mathbb{R}$ with $a < b$. Show that, if $f'(a) = f'(b)$, then ξ exists with $a < \xi < b$ such that

$$f'(\xi) = \frac{f(\xi) - f(a)}{\xi - a} \ .$$