16.22 [1F4]Prerequisites:[1F1].Difficulty:*.Let $f : \mathbb{R} \to [0, \infty)$ be a function of class C^∞ such that $f(0) = 0$, $f(x) > 0$ for $x \neq 0$, and $f''(0) \neq 0$: show that

$$g(x) = \begin{cases} \sqrt{f(x)} & se \ x \geq 0 \\ -\sqrt{f(x)} & se \ x < 0 \end{cases}$$

is of class C^∞.

Solution 1. [1F5]