16.22 [1DR] Let it be given N positive integer. Find an example of a function C^∞ with $\varphi(x) = 0$ for $x < 0$ while $\varphi^{(n)}(x) > 0$ for $0 \leq n \leq N$ and $x > 0$.

Solution 1. [1DS]

Note however that it cannot be required that all derivatives be positive, because of exercise [1N7].