All points of this sheet are bonus points!

1 Differentiable implies Continuous

Let $D \subset \mathbb{R}^n$, $x_0 \in D$ with $B_\varepsilon(x_0) \subset D$ for some $\varepsilon > 0$. Let $f\colon D \to \mathbb{R}$ be (Frechét-) differentiable at x_0. Show that f is continuous at x_0.

Solution: