Jacobs University Bremen
School of Engineering and Science
Götz Pfander, Sergei Markouski,
Alex Sava

Spring Term 2008
Name:

Analysis II — Quiz 4

14.03.08

Q4.1. Leibniz rule. If f and g are differentiable real valued functions on $\mathbb{R}^2$, prove that

$$D(fg) = (Df)g + f(Dg).$$

Q4.2. Local maximum.

Suppose that f is a differentiable real valued function on an open set $U \subset \mathbb{R}^2$, and that f has a local maximum at $x_0 \in U$. Prove that $(Df)_{x_0} = 0$.