1. Suppose that $f : \mathbb{R}^2 \to \mathbb{R}^2$ and $g : R^2 \to R^2$ are differentiable. Find the total derivative $D(f \circ g)$. (Note: you may write f as (f_1, f_2), where $f_i : \mathbb{R}^2 \to \mathbb{R}$ for $i \in \{1, 2\}$, and similarly for g.)