Assigned: 3-28-16

Suppose that $M$ is a surface which is the graph of a function $f : R \to \mathbb{R}$, where $R$ is a simple closed curve in $\mathbb{R}^2$. Suppose $U$ is an open set which contains $M$, and $g : U \to \mathbb{R}$ has continuous partial derivatives. Let $\phi = dg$. Use Stoke’s theorem to prove that

$$\int_{\partial M} \phi = 0.$$