

MATHEMATICS 3220. Homework # 12.
NOT TO BE HANDED IN!

1. §11.5, # 4.

2. Let $f : \mathbb{R}^2 \rightarrow \mathbb{R}$ be a continuously differentiable function such that for each $\mathbf{x} \in E = \{(x, y) : f(x, y) = 0\}$ we have $\nabla f(\mathbf{x}) \neq \mathbf{0}$. Show that for each $\mathbf{x}_0 \in E$ there exists a relatively open subset $\Gamma \subset E$ containing \mathbf{x}_0 so that either Γ is the graph of a continuously differentiable function $g(x)$ or the graph of a continuously differentiable function $g(y)$.