For Assignment 6

1. Let $u$ be some linear function $ax + by$ ($a, b \in \mathbb{R}$) in the $(x, y)$-plane. Let $v$ be another linear function. Show that the meaning of $\partial/\partial u$ depends on what $v$ happens to be.

2. Concerning Sect. 2.7, #19: let $C$ be a curve in the plane $z = 1$ with no self-intersections. The cone on $C$ is defined to be the union of all lines connecting the origin $(0,0,0)$ to a point of $C$.
   a) Determine the set of all points where the cone has a tangent plane.
   b) Under what conditions on $C$ does the conclusion of 19(c) hold?