Additinal Exercise

Deadline of submission: February 20 (Tue), 2018

Name.. Student ID................... No.........

Let f be a function defined by

$$f(x,y) = \begin{cases} \dfrac{xy}{\sqrt{x^2+y^2}} & , (x,y) \neq (0,0) \\ 0 & , (x,y) = (0,0) \end{cases}$$

Show that f is continuous but not differentiable at $(0,0)$, although it has both partial derivatives existing there.