

Excerpt from an exam.

Answer just by saying

TRUE or FALSE.

Let $f: \mathbb{R}^2 \rightarrow \mathbb{R}$. If f is continuous at some point $(x, y) \in \mathbb{R}^2$ then its partial derivatives at (x, y) exist, although they may be discontinuous at (x, y) .

Correct answer: FALSE

if we change continuous by differentiable, then it would be true.