

Check your understanding

30. If $f_x(x_0, y_0)$ and $f_y(x_0, y_0)$ exist, but f is not differentiable at (x_0, y_0) , will linear approximation give a good approximation to $f(x_0 + \Delta x, y_0 + \Delta y)$ when Δx and Δy are small?
- (a) Yes.
 - (b) Yes when $\Delta x = 0$ or $\Delta y = 0$, but maybe not when Δx and Δy are both nonzero.
 - (c) Maybe not at all.

Answer: (b).