Math 53 (Multivariable Calculus), Section 102 & 108
Week 6, Friday
Sep 30, 2022
For the other materials: seewoo5.github.io/teaching/2022Fall

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1. Compute $f_x, f_y, f_{xx}, f_{xy}, f_{yx}, f_{yy}$ of $f(x,y) = \sin(xy)$. Check that $f_{xy} = f_{yx}$.
2. Use implicit differentiation to find $\partial z/\partial x$ and $\partial z/\partial y$.
   (a) $\sin x + \sin y + \sin z = 1$
   (b) $e^x + e^y + e^z = xyz$
3. If
$$f(x,y) = y\tan^2(x^2) + \frac{x+y}{(x^2+y^2)^{3/2}} e^{\sin(x\sqrt{y})}$$
compute $f_x(1,0)$ and $f_y(0,1)$.