

Math 53 (Multivariable Calculus), Section 102 & 108

Week 7, Wednesday

Oct 5, 2022

For the other materials: seewoo5.github.io/teaching/2022Fall

1. Let $f(x, y) = 1 + x \ln(xy - 5)$.
 - (a) Find the linearization of $f(x, y)$ at $(2, 3)$.
 - (b) Using (a), estimate $f(2.01, 2.99)$.
2. Let $z = x^2 - y^2$, $x = e^t + e^{-t}$, $y = e^t - e^{-t}$. Find dz/dt .
3. Let $z = x^2 + y^2 + \frac{x}{y}$, $x = r \cos \theta$, $y = r \sin \theta$. Find $\partial z / \partial r$ and $\partial z / \partial \theta$.