

Math 2513 – Summer 2024

Quiz 3

Name:

Student ID:

1 – For the equation $f(x,y) = x^3 + y^2$, find a constant approximation at $(3.1, -1.2)$. Find a linear approximation at the same point. (2)

2 – Find the gradient of the equation $f(x,y,z) = 2y^2 + e^{xyz}$. (1)

3 – Find the directional derivative of xye^z in the direction of the x-axis, at the point $(1,0,1)$. (1)

4 – Find the critical points of the equation $f(x,y) = 2x^3 + y^4 - 2xy$. Which are minimums, maximums, or unknown? (2)