Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Consider the function $f(x, y) = \ln(x + 2y^2) - \cos xy$. Find f_x, f_y, f_{xy} .

2. Calculate the total differential of $f(x, y, z) = xe^{yz}$, and then use the values of the function at (1,4,0) to estimate the value of the function at the point (0.95,4.1,0.01).