

Q1) Find the absolute maximum and minimum of $f(x, y) = x + y - xy$ on the closed triangular region with vertices $(0,0)$, $(0,2)$ and $(4,0)$.

Q2) Use Lagrange multipliers to find the maximum and minimum values of the function $f(x, y) = y^2 - x^2$ subject to the constraint $\frac{1}{4}x^2 + y^2 = 1$.