

Math 53 Discussion Problems Oct 17

1. Find all the local maxima, local minima, and saddle points of the following functions.

(a) $f(x, y) = 2x^2 + 3xy + 4y^2 - 5x + 2y$

(b) $f(x, y) = x^4 + y^4 + 4xy$

(c) $f(x, y) = e^x(x^2 - y^2)$

(d) $f(x, y) = \frac{1}{x^2 + y^2 - 1}$

2. Find the point on the graph of $z = x^2 + y^2 + 10$ nearest to the plane $x + 2y - z = 0$.