

Math 234 Discussion Worksheet - Oct 20

1. Find all critical points of the following functions, and apply the second derivative test to the points you find.

(a) $f(x, y) = x^2 + 2y^2 - x^2y.$

(b) $f(x, y) = 2x + y - x^2y.$

2. Find the minimum of the function $f(x, y) = (1 - x^2 - y^2)^2.$

1. (a) local min at $(0, 0)$, saddle at $(2, 1)$, saddle at $(-2, 1)$

1. (b) saddle at $(1, 1)$, saddle at $(-1, -1)$

2. $\min f = 0$