

Name _____

- Write as neatly as you can!
 - No calculators are allowed.
 - You must show your work to obtain full credit.
1. (5 points) Use the second derivatives test to identify local maxima, local minima, and saddle points for the function

$$f(x, y) = \frac{x^3}{3} + 8x + 3y^2 - 6xy.$$

2. (5 points) Use Lagrange multipliers to find the extreme values of the function

$$f(x, y) = \frac{x^3}{3} + 8x + 3y^2 - 6xy$$

subject to the constraint that $x - y = 2$.