

Show all work clearly and in order, and circle your final answers. Justify your answers.

PROBLEM ONE Find and classify all the critical points of

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

PROBLEM TWO Find the maximum and minimum values of  $f(x, y) = 2x + y$  subject to the constraint  $4x^2 + 3y^2 = 9$ .