

Section 24

Quiz 10 Aditya Sivakumar

$$f(x, y) = 12x^2 - 4x^3 + 6y^2 + 12xy$$

$$f_x = 24x - 12x^2 + 12y \quad f_{xy} = 12$$

$$f_y = 12y + 12x$$

$$f_{xx} = 24 - 24x$$

$$f_{yy} = 12$$

$$f_x = 0 \quad 24x - 12x^2 - 12y = 0$$

$$f_y = 0 \quad y = -x \quad 12x(1 - x^2) = 0$$

$$x = \pm 1 \quad y = \pm 1$$

$$(1, -1); \quad \cancel{(-1, 1)}$$

$$(1, -1)$$

$$f_{xx} = 0 \quad f_{xy} = 12$$

$$f_{yy} = 12$$

$$D = -144$$

This function has no min/max values.

Saddle point @ $(1, -1)$