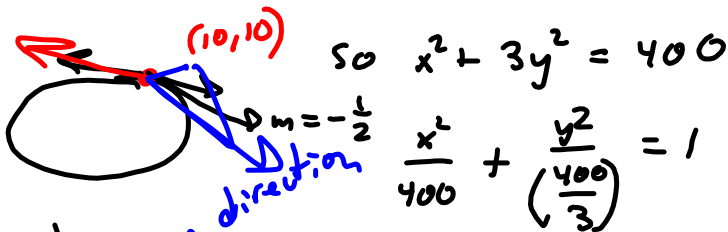


Test 2 Nothing like #2 on Part 1

Part 2: Bonus:

level curve (a) $(10, 10, 100)$ is

$$f(x, y) = 500 - 3y^2 - x^2 = 100$$



$$y' = -\frac{1}{3}$$

$\langle 1, -3 \rangle$

is your direction

(OR $\langle -1, 3 \rangle$)

Ellipse.

$$\frac{2x}{400} + \frac{2yy'}{\frac{400}{3}} = 0$$

$$y' = -\frac{\frac{2y}{400}}{\frac{2y}{\frac{400}{3}}} = -\frac{2y}{400} \cdot \frac{400}{2y(3)}$$

$$= -\frac{x}{3y}$$

$$y' \Big|_{(10, 10)} = \frac{-10}{3(10)} = -\frac{1}{3}$$

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