gradient plot

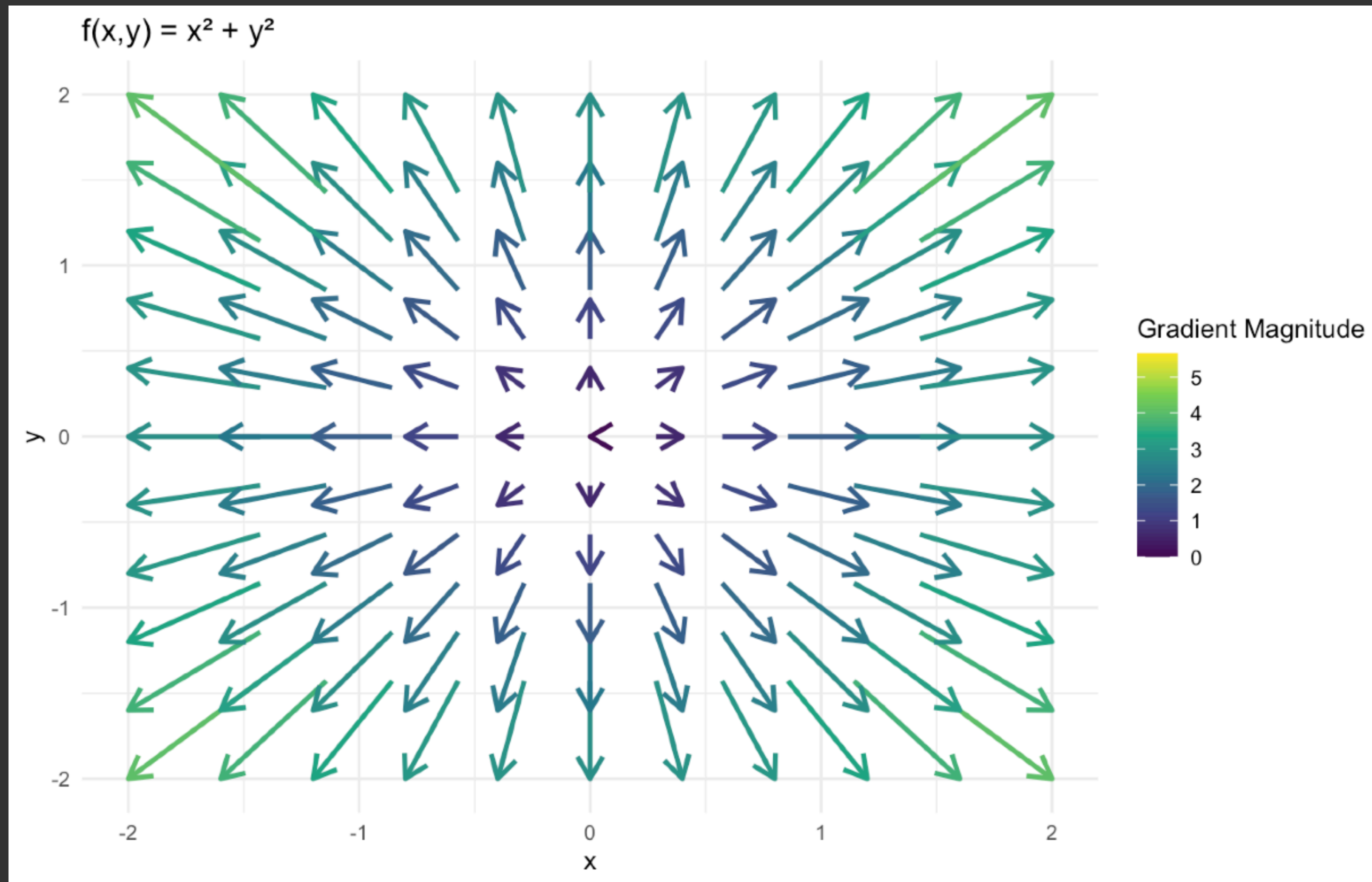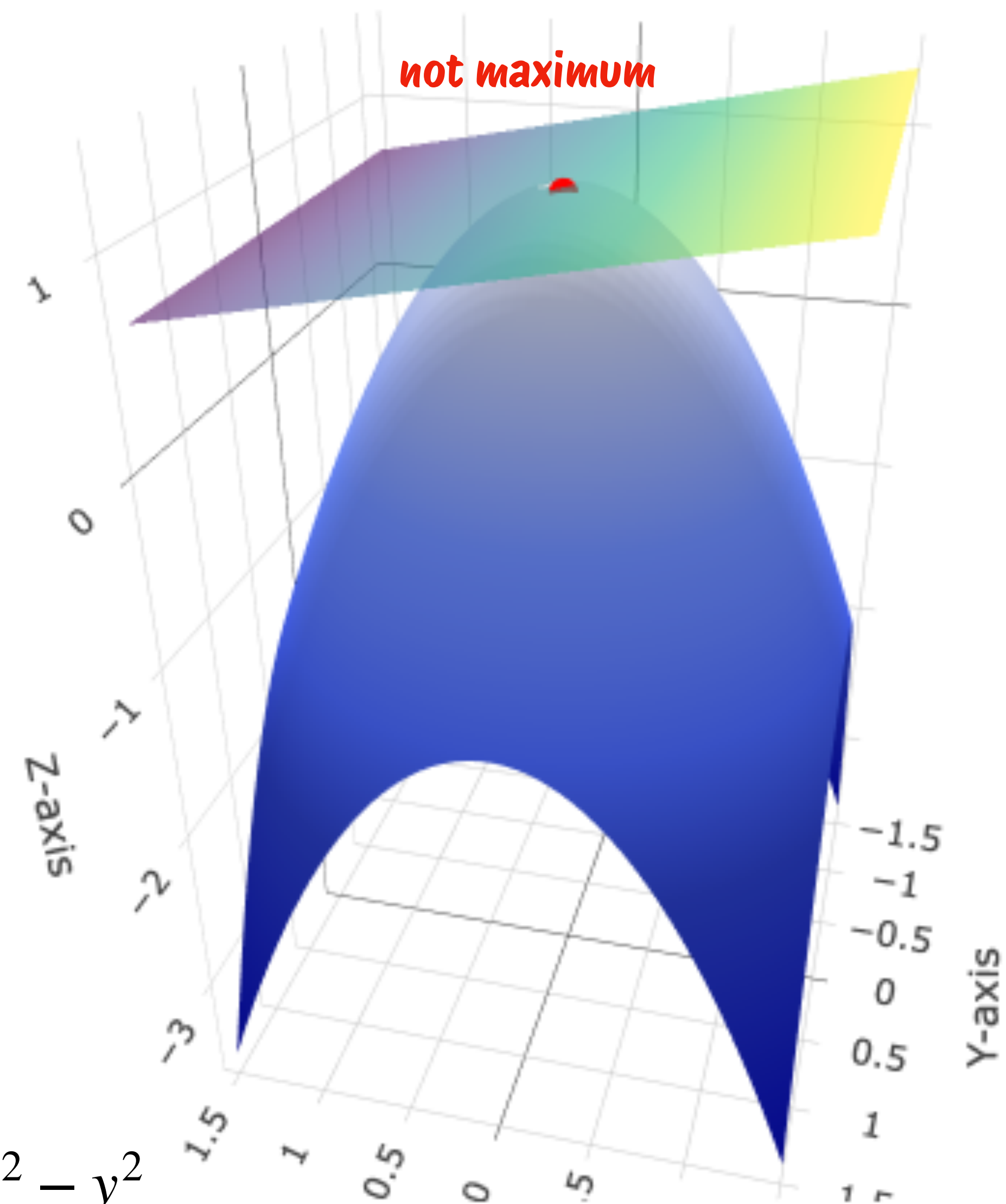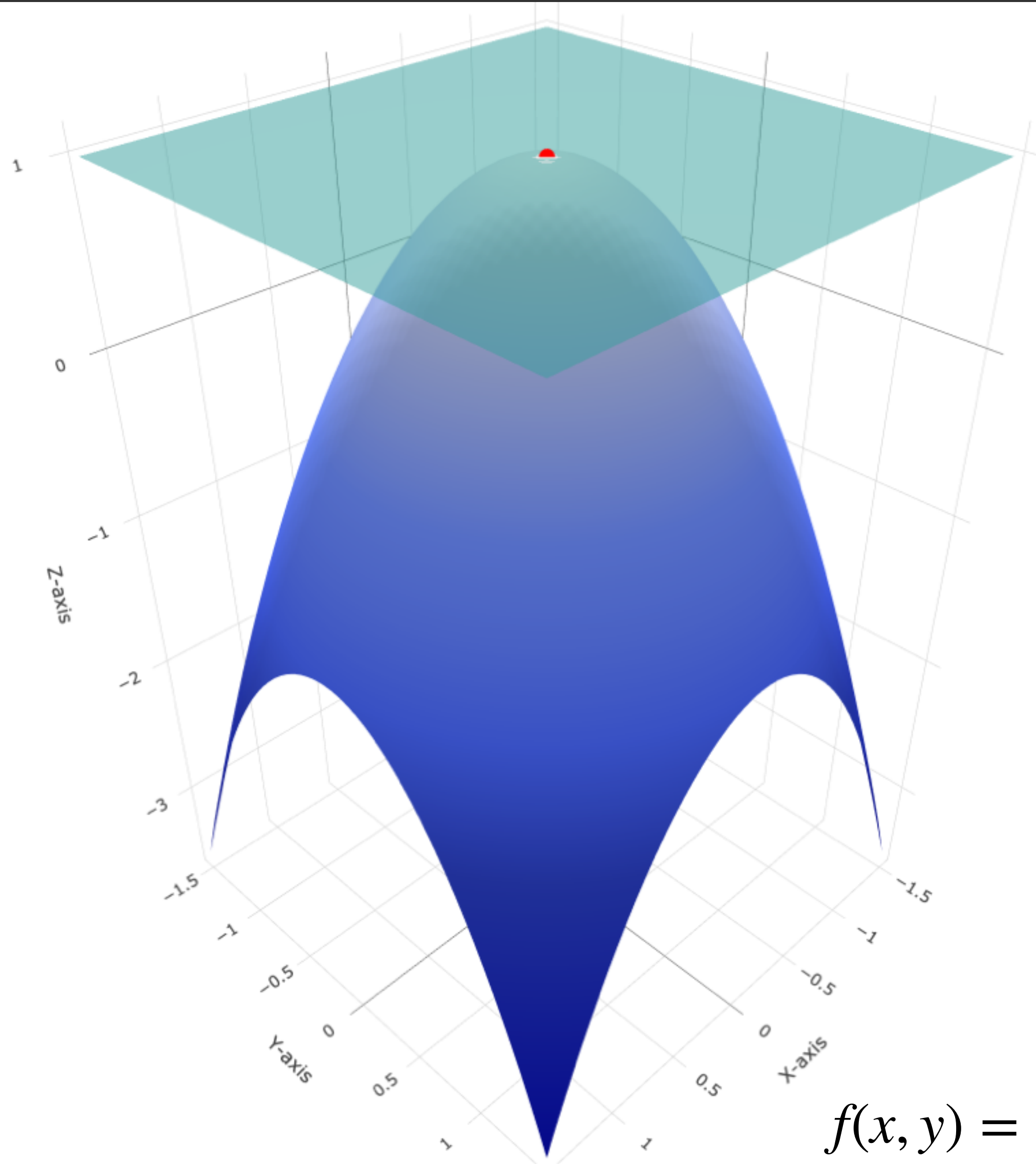The gradient $\nabla f = (2x, 2y)$ shows the direction of steepest ascent

f(x,y) = x² + y²

optimization

$$f(x, y) = 1 - x^2 - y^2$$