

1. Let $f(x, y) = x^3 - 2x^2y + y^2$

a) Find the gradient of $f(x, y)$.

Answer: _____

b) Find the direction (as a unit vector) and magnitude of steepest ascent at the point $(1, 1)$.

Answer: _____

c) What is the direction of steepest descent at this point?

Answer: _____