

TANGENT PLANES HANDOUT

MAY 8, 2019

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

(a) Find an equation of the tangent plane to the graph of f at the point $(1, 1, 3)$.

(b) Use the tangent plane to approximate the value of $f(1.1, 0.9)$. (The actual value is $f(1.1, 0.9) = 3.23$.)

Exercise 2.

(a) Find the tangent plane to the surface given by $xy + yz + zx = 11$ at the point $(1, 2, 3)$

(b) Find the linear approximation to $f(x, y) = x\sqrt{y}$ at the point $(1, 4)$.