

Class 11, Practice Problems

Multivariable Calculus

March 16, 2020

13.7 Tangent Planes

1. Find the equations of the tangent plane at the point $(-2, 1, -3)$ to the ellipsoid

$$\frac{x^2}{4} + y^2 + \frac{z^2}{9} = 3.$$

2. Find an equation for the tangent plane and parametric equations for the normal line to the surface $z = x^2y$ at the point $(2, 1, 4)$.

What is the acute angle that the tangent plane at the point $(2, 1, 4)$ makes with the xy -plane?

13.8 Maximum and Minimum Values

1. Find all the critical points of

$$f(x, y) = x^3y + 12x^2 - 8y.$$