

Class – 9

Introduction to Maxima and Minima for a function of two variables

1. Discuss the maxima and minima of $f(x, y) = xy(5x + y - 15)$.

Ans: $f(x, y)$ is minimum at (1,5) and the value is -25

2. Find the points on the surface $z^2 = xy + 1$ nearest to the origin. Also find that distance. **Ans: The points (0,0,1) and (0,0,-1) are nearest to the origin and the minimum distance is 1.**
3. Prove that if the perimeter of a triangle is constant, its area is maximum when the triangle is equilateral.