Class – 10

Problems on Maxima and Minima for a function of two variables continued

1. Determine the critical points and locate any relative minima, maxima and saddle points of function f defined $f(x,y) = x^4 + y^4 - 4xy$.
   Ans: $f(x,y)$ is minimum at (1,1) and (-1, -1). (0,0) is the saddle point
2. Divide the number 24 into three parts such that the continued product may be maximum. **Ans: x=8, y=8, z=8**
3. Find local maxima and minima of the function $f(x,y) = x^3 - 12xy + 8y^3$.

   Ans: $f(x,y)$ is local minimum at (2,1) and (0,0) is the saddle point.