Local Maxima/Minima

1 Review of Critical Points and Local Maxima/Minima

2 Critical Points of $f(x, y)$

3 Multivariable Second Derivative Test

3.1 One Possible Way to Remember the Second Derivative Test

4 Critical Points of $f(x, y, z)$

Note: Classifying critical points of $f(x, y, z)$ is more complicated. This topic isn't discussed in many multivariable calculus textbooks.

Where does the Second Derivative Test come from? The answer: linear algebra and the multivariable Taylor series.