Multivariable Function

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1. Multivariable Function

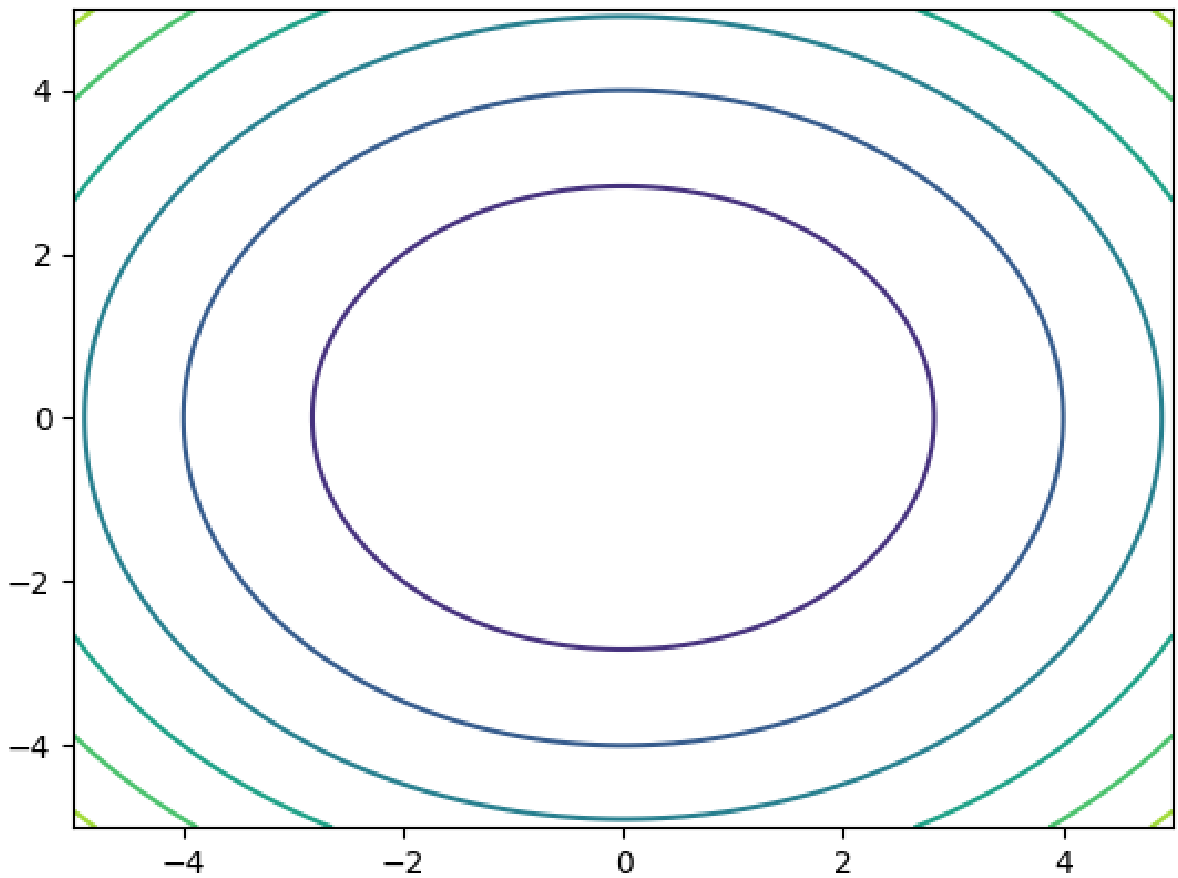
1.1. Definition

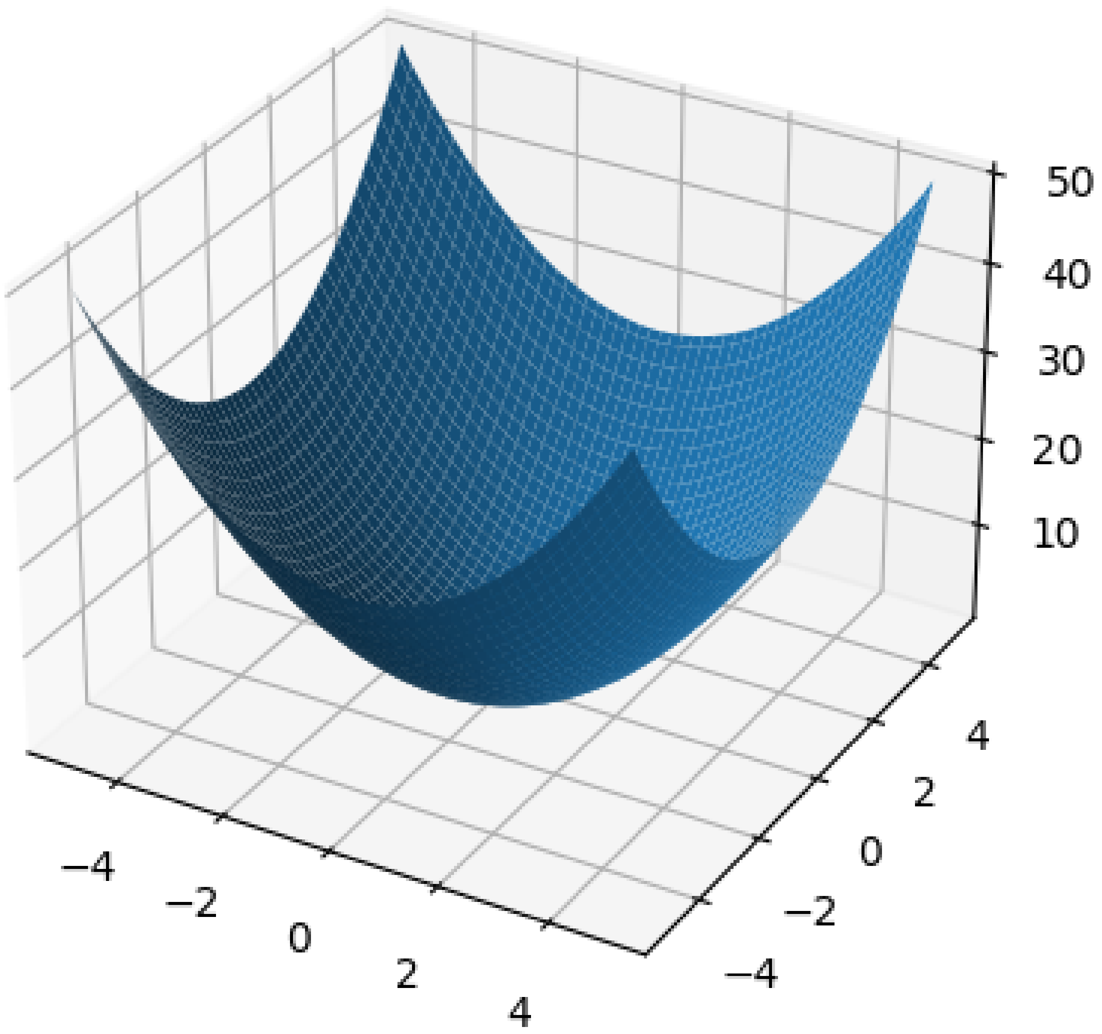
A multivariable function is a function of more than one variable. For example, if $f(x, y)$ is a function of two variables x and y, then it is a multivariable function.

Multivariable functions are useful in mathematics and physics, as they allow us to model phenomena that depend on more than one variable. For example, the position of a particle in three-dimensional space can be represented by a function of three variables, such as $f(x, y, z) = x^2 + y^2 + z^2$.

In order to find the value of a multivariable function at a given point, we need to specify the values of all of its variables. For example, to find the value of $f(x, y)$ at the point $(1, 2)$, we would plug in $x = 1$ and $y = 2$ into the function to get $f(1, 2)$.

Multivariable functions can be analyzed using the tools of multivariable calculus, such as partial derivatives, gradient vectors, and tangent planes. These allow us to study the behavior of the function near a given point, and to find maximum and minimum values of the function.





1.2. Links

- Partial Derivative
- Gradient Vector
- Tangent Plane
- Directional Derivative
- Extrema Multivariable function
- Method Of Lagrange Multipliers