

# Functions of Several Variables - Important Topics

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## Partial Derivatives

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The derivative of a function with respect to one variable while keeping other variables constant.

## Total Derivatives

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Represents the total rate of change of a function considering all independent variables.

## Maxima and Minima of Two Variables

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To find the local extrema of a function  $f(x, y)$ , we solve  $f_x = 0$  and  $f_y = 0$  and analyze the second-order derivatives.

## Lagrange's Method of Multipliers

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A method for finding extrema of a function subject to one or more constraints by introducing a new variable called the Lagrange multiplier.

