Why

We want to talk about a function of multiple real-valued arguments changes with respect to changes in its arguments.

Definition

Consider a real-valued function on d-dimensional space. For $i = 1, \ldots, d$, Fix a point x. consider the limit of a sequence of quotients of the difference of the result of that function at a point the consider the limit of a sequence of quotients of the value changed at component The *partial derivative* of the function with respect to the ith the function which maps d-dimensional vectors of real numbers to the limit of a seq of all of the quotient between the point to argument is the limit of the rate with a The partial derivative of a

Let $f : \mathbf{R}^d \to \mathbf{R}$ For $i = 1, \ldots, d$, define Let $g_i : \mathbf{R}^d \to \mathbf{R}$ by

$$g_i(x) = \lim_{h \to 0} \frac{f(x + he_i) - f(x)}{h}$$

for each x

Partial Derivatives

Differentiability

N-Dimensional Space

Real Functions

Space

Intervals

Real Order

Real Numbers

Rational Numbers

Integer Arithmetic

Natural Additive Identity

Natural Multiplicative Identity

Identity Elements

Arithmetic

Operations

Natural Exponents

Integer Products

Functions

Natural Products

Integer Sums

Natural Sums

Integer Numbers

Recursion Theorem

Equivalence Relations

Relations

Peano Axioms

Cartesian Products

Natural Induction

Set Powers

Natural Numbers

Unordered Triples

Successor Sets

Intersection of Empty Set

Partitions

Ordered Pairs

Pair Unions

Set Intersections

Set Unions

Set Differences

Unordered Pairs

Empty Set

Pair Intersections

Set Specification

Set Inclusion

Standardized Accounts

Definitions

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Names

Objects

Letters

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