Why

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Definition

Let $A \subset \mathbf{R}$ be open. A function $f : A \to \mathbf{R}$ is *smooth* if it has derivatives of any order. Since differentiability implies continuity, every derivative of a smooth function is continuous.

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[1]Future editions will include.

Smooth Real Functions

Higher Order Derivatives

Second Derivatives

Differentiable Functions

Real Open Sets

N-Dimensional Space

Real Functions

Distance

Space Distance

Plane Distance

Interval Length

Intervals

Real Line

Real Space

Real Plane

Integral Line

Real Order

Geometry

Real Numbers

Rational Numbers

Integer Arithmetic

Sequences

Natural Multiplicative Identity

Natural Additive Identity

Set Numbers

Direct Products

Arithmetic

Identity Elements

Finite Sets

Natural Powers

Integer Products

Operations

Equivalent Sets

Natural Products

Integer Sums

Function Inverses

Family Unions and Intersections

Natural Sums

Integer Numbers

Function Composites

Function Images

Families

Recursion Theorem

Natural Order

Equivalence Relations

Functions

Peano Axioms

Relations

Natural Induction

Cartesian Products

Natural Numbers

Set Powers

Generalized Set Dualities

Partitions

Intersection of Empty Set

Successor Sets

Unordered Triples

Set Dualities

Set Unions and Intersections

Ordered Pairs

Set Intersections

Pair Unions

Set Complements

Set Unions

Set Differences

Pair Intersections

Unordered Pairs

Empty Set

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities

Sets

Name

Letters

Objects