Why

[1]

Definition

Let X a finite nonempty set. A function $f : \mathcal{P}(X) \to \mathbf{R}$ is *submodular* if

$$f(S \cup T) + f(S \cap T) \leq f(S) + f(T)$$

for all $S, T \subset X$.

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[1] Future editions will include. The discussion will likely be genetic, through combinatorial optimization.

Submodular Functions

Real Functions — Finite Sets

Intervals

Real Line

Real Order

Real Numbers — Rational Order

Rational Numbers

Integral Line

Integer Arithmetic

Natural Additive Identity — Natural Multiplicative Identity

Integer Products

Identity Elements — Arithmetic

Natural Powers

Equivalent Sets

Integer Sums — Natural Products — Integer Order — Comparisons — Function Inverses

Operations

Integer Numbers — Natural Sums — Orders — Function Images — Function Composites

Recursion Theorem — Equivalence Relations — Natural Order — Converse Relations — Functions

Peano Axioms — Relations

Natural Induction — Set Products

Natural Numbers — Set Powers — Ordered Pairs

Partitions — Intersection of Empty Set — Successor Sets — Unordered Triples

Set Intersections — Set Symmetric Differences — Pair Unions

Pair Intersections — Set Complements — Set Unions

Empty Set — Set Differences — Unordered Pairs

Set Specification — Geometry

Set Equality

Set Inclusion

Deductions

Quantified Statements

Logical Statements

Statements

Identities — Sets

Names

Letters — Objects