Why

[1]

Definition

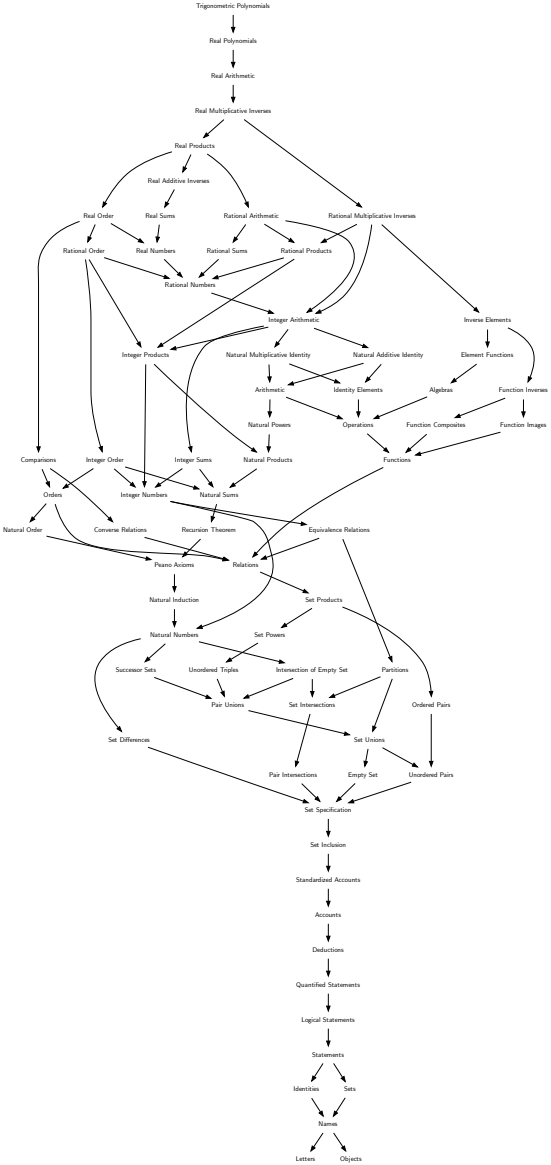
A *trigonometric polynomial* of order n is a function $u : \mathbf{R} \to \mathbf{R}$ for which there exists $\alpha_0, \alpha_1, \ldots, \alpha_n, \beta_1, \beta_2, \ldots, \beta_n \in \mathbf{R}$ so that

$$u(x) = \alpha_0 + \sum_{k=1}^{n} (\alpha_k \cos(kx) + \beta_k \sin(kx)).$$

In other words,

$$u(x) = \alpha_0 + \alpha_1 \cos x + \beta_1 \sin x + \alpha_2 \cos 2x + \beta_2 \sin 2x + \cdots + \alpha_n \cos nx + \beta_n \sin nx.$$

[1] Future editions will include.


Trigonometric Polynomials
Real Polynomials
Real Arithmetic
Real Multiplicative Inverses
Real Products
Real Additive Inverses
Real Order
Real Sums
Rational Arithmetic
Rational Multiplicative Inverses
Rational Order
Real Numbers
Rational Sums
Rational Products
Rational Numbers
Integer Arithmetic
Inverse Elements
Integer Products
Natural Multiplicative Identity
Natural Additive Identity
Element Functions
Arithmetic
Identity Elements
Algebras
Function Inverses
Natural Powers
Operations
Function Composites
Function Images
Comparisons
Integer Order
Integer Sums
Natural Products
Functions
Orders
Integer Numbers
Natural Sums
Natural Order
Converse Relations
Recursion Theorem
Equivalence Relations
Peano Axioms
Relations
Natural Induction
Set Products
Natural Numbers
Set Powers
Successor Sets
Unordered Triples
Intersection of Empty Set
Partitions
Pair Unions
Set Intersections
Ordered Pairs
Set Differences
Set Unions
Pair Intersections
Empty Set
Unordered Pairs
Set Specification
Set Inclusion
Standardized Accounts
Accounts
Deductions
Quantified Statements
Logical Statements
Statements
Identities
Sets
Names
Letters
Objects