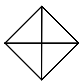


Why

[1]

Definition

Let $(A, +, \cdot)$ be an ring. A *polynomial* in A of *degree* d is a finite sequence of length $d+1$. We call the elements of the sequence the *coefficients* of the polynomial.

Let $c = (c_0, c_1, \dots, c_{d-1}, c_d)$ be a polynomial of degree d. The *polynomial function* or *function of the polynomial* c is the function $f : A \to A$ defined by

$$f(a) = c_0 + c_1 a^1 + c_2 a^2 + \cdots + c_d a^d.$$

In accordance with this terminology, we often call function $f : A \to A$ a polynomial if there exists a polynomial c so that f is the polyonomial function of c.

The function $f : A \to A$ is a polynomial of degree 0 and order 1 if there exists c_0 so that

$$f(a) = c_0$$

for all $a \in A$.

The function $g : A \to A$ is a polynomial of degree 1 and order 2 if there exists c_0 and c_1 so that

$$g(a) = c_0 + c_1 a$$

[1]Future editions will include, and most likely will build on quadratics.

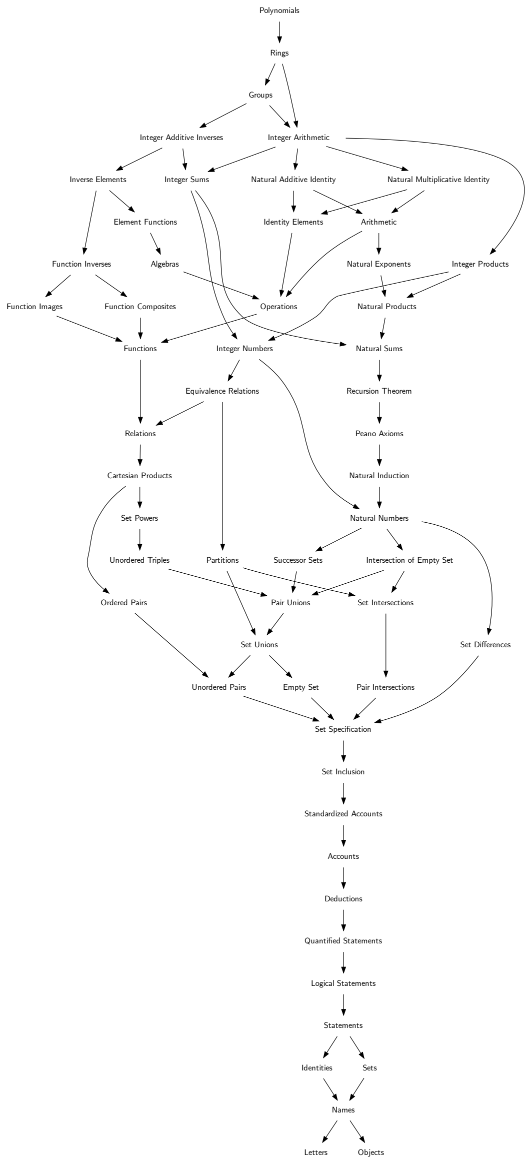
The function $h : A \to A$ is a polynomial of degree 2 and order 3 if there exists c_0 and c_1 so that

$$h(a) = c_0 + c_1 a + c_2 a^2.$$

In other words, a second degree polynomial is a quadratic.

The function $p : A \to A$ is a *polynomial* of degree d and order $d+1$ if there exists a $d+1$ length sequence $(c_0, c_1, \dots, c_d)$ in A so that

$$p(a) = c_0 + c_1 a + \cdots + c_d a^d.$$


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