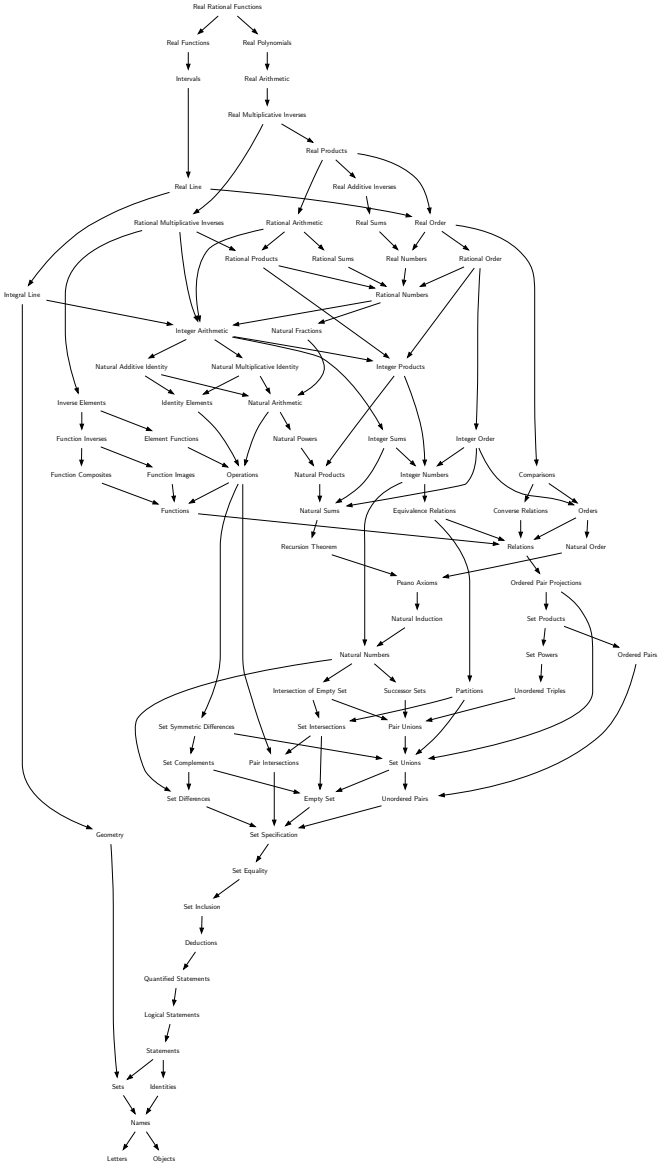
Definition

A *real rational function* (or *rational function* or *fractional function*) is a function $f : \mathbf{R} \to \mathbf{R}$ for which there exists polynomials $p : \mathbf{R} \to \mathbf{R}$ and $q : \mathbf{R} \to \mathbf{R}$ so that $f(x) = p(x)/q(x)$ for all $x \in \mathbf{R}$.

In this case we call p the *numerator polynomial* (and p the *numerator function*) and q the *denominator polynomial* (and q the *denominator function*). Of course, the language *rational* is in reference to the fact that if p and q are integer-valued functions, then the function f is a rational-valued function (see Rational Numbers).


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