Why

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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).

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[1]Future editions will include.

Real Rational Functions

Real Functions · Real Polynomials

Intervals · Real Arithmetic

Real Multiplicative Inverses

Real Products

Real Line · Real Additive Inverses

Real Order · Real Sums · Rational Arithmetic · Rational Multiplicative Inverses

Rational Order · Real Numbers · Rational Sums · Rational Products

Integral Line · 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

Companions · Integer Order · Integer Sums · Natural Products · Functions

Orders · Integer Numbers · Natural Sums

Converse Relations · Equivalence Relations · Natural Order · Recursion Theorem

Relations · Peano Axioms

Set Products · Natural Induction

Set Powers · Natural Numbers

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

Ordered Pairs · Set Intersections · Pair Unions

Set Unions · Set Differences

Unordered Pairs · Empty Set · Pair Intersections

Geometry · Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Sets · Identities

Names

Letters · Objects