Definition

The equation

$$x^p = 1$$

has p roots and these are called the p roots of 1.[1] We call the complex numbers which solve this equation the *pth roots of one* or the *(pth) roots of unity.*

A nth root of unity $r \in \mathbf{R}$ is *primitive* if it is not an mth root of unity for any $m < n$.

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[1]Future editions will expand.

Roots of One

Complex Numbers

Absolute Value — Real Arithmetic

Interval Length — Real Multiplicative Inverses

Intervals — 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 Multiplicative Identity — Natural Additive Identity — Integer Products

Inverse Elements — Identity Elements — 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 — Orders — Converse Relations

Recursion Theorem — Natural Order — Relations

Peano Axioms — Ordered Pair Projections

Natural Induction — Set Products

Natural Numbers — Set Powers — Ordered Pairs

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

Set Symmetric Differences — Set Intersections — Pair Unions

Pair Intersections — Set Complements — 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