Why

How do the modulus and conjugate of a complex number relate?

Results

Recall that $z = x + iy$ means that $z^* = x - iy$ and so

$$z\bar{z} = (x + iy)(x - iy) = x^2 + y^2 = |z|^2 \,.$$

Complex Conjugates and Moduli

Complex Conjugates   Complex Absolute Value

Complex Plane

Complex Numbers

Real Arithmetic   Absolute Value   Plane Distance

Real Multiplicative Inverses   Interval Length

Real Products

Real Additive Inverses   Intervals

Rational Arithmetic   Real Sums   Real Order   Rational Multiplicative Inverses   Integral Line   Real Line

Rational Products   Rational Sums   Real Numbers   Real Plane

Rational Numbers   Geometry

Integer Arithmetic   Inverse Elements   Sequences

Integer Products   Natural Multiplicative Identity   Natural Additive Identity   Element Functions   Set Numbers

Arithmetic   Identity Elements   Algebras   Finite Sets

Natural Exponents   Operations   Equivalent Sets   Direct Products

Integer Sums   Natural Products   Function Inverses   Family Unions and Intersections

Integer Numbers   Natural Sums   Function Images   Function Composites   Families

Equivalence Relations   Recursion Theorem   Functions   Natural Order

Relations   Peano Axioms

Natural Induction   Cartesian Products

Natural Numbers   Set Powers   Generalized Set Dualities

Partitions   Intersection of Empty Set   Successor Sets   Unordered Triples   Set Dualities   Set Unions and Intersections

Set Intersections   Pair Unions   Ordered Pairs   Set Complements

Set Differences   Set Unions   Pair Intersections

Unordered Pairs   Empty Set

Set Specification

Set Inclusion

Standardized Accounts

Accounts

Deductions

Quantified Statements

Logical Statements

Statements

Identities   Sets

Names

Letters   Objects

4