Why

We want to solve equations with squares.

Definition

Let m be a square number. We want to find n to satisfy

$$n^2 = m.$$

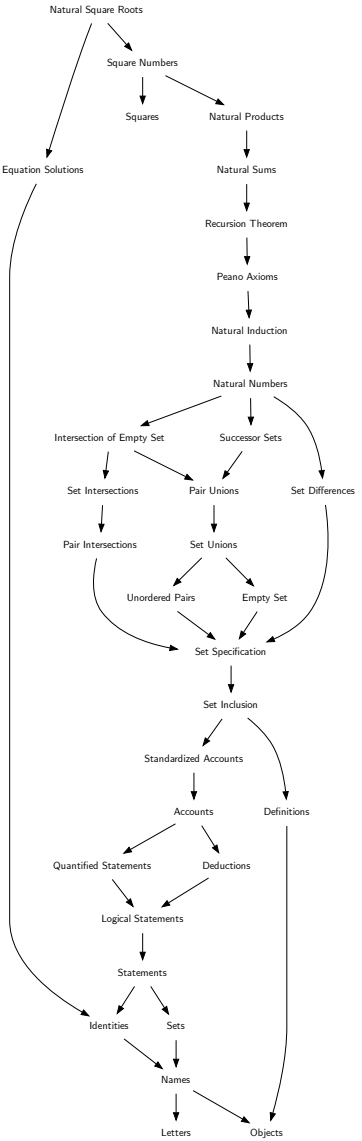
We call such an n a *square root* of m.

Proposition **1.** *The square root of a square number is unique.*

This result motivates definining a function the *square root function* which square numbers to their roots.

Notation

Let S denote the set of square numbers. ($S \subset \mathbf{N}$). Let $f : S \to N$ be the function such that $f(s)$ is the square root of s. We denote the result of f on n by $\sqrt{n}$.


Natural Square Roots
Square Numbers
Squares
Natural Products
Equation Solutions
Natural Sums
Recursion Theorem
Peano Axioms
Natural Induction
Natural Numbers
Intersection of Empty Set
Successor Sets
Set Intersections
Pair Unions
Set Differences
Pair Intersections
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Unordered Pairs
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