



Why

We want to solve equations with squares.

Definition

Let b be any real number. We want to find a to solve

$$a^2 = b.$$

We call a solution a a *square root* of b .

Proposition 1. *A positive real number has two square roots.*

Despite the above proposition, we still speak of *the square root* of a real number, which is the positive square root. We also speak of the *square root function* which associates a real number to its positive square root.

Proposition 2. *A two roots of a positive real number are additive inverses.*

Notation

As with natural numbers, we denote *the* (positive) square root of the real number $x \in \mathbf{R}$ by \sqrt{x} . Some authors refer to both the roots of x by writing $\pm\sqrt{x}$.

