

## Complex Numbers

## 1 Why

We want to find roots of negative numbers

## 2 Definition

A complex number is an ordered pair of real numbers. The real part of a complex number is its first coordinate. The imaginary part of a complex number is its second coordinate.

## 2.1 Notation

Let z be a complex number. We denote the real part of z by  $\mathbf{Re}(z)$ , read "real of z," and the imaginary part by  $\mathbf{Im}(z)$ , read "imaginary of z." So if z = (a, b), then  $\mathbf{Re}(z) = a$  and  $\mathbf{Im}(z) = b$ .