18.06.27: Complex numbers

Lecturer: Barwick

I worked so hard to understand it that it must be true.

— James Richardson

It finally became awkward for me not to talk about complex numbers anymore. Even in the story about symmetric matrices (whose eigenvalues are all real), you want to talk about complex numbers.

There are lots of ways of talking about the set $\mathbf{C}$ of complex numbers, but let's use some of our linear algebra.

The set $\mathbf{C}$ is the set $\mathbf{R}^2$, but where I write $a + bi$ instead of $\begin{pmatrix} a \\ b \end{pmatrix}$.

In other words, $\mathbf{C}$ is a 2-dimensional vector space with basis $\{1, i\}$.