

Complex Functions I

textbook section 17.4

MATH 241

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Definition

A **complex-valued function of a single complex variable** (complex function) is an assignment, to each complex number z , of a complex number $f(z)$.

Recall

The **graph** of a function is $\{(z, f(z)) \mid z \text{ is in the domain of } f\}$.

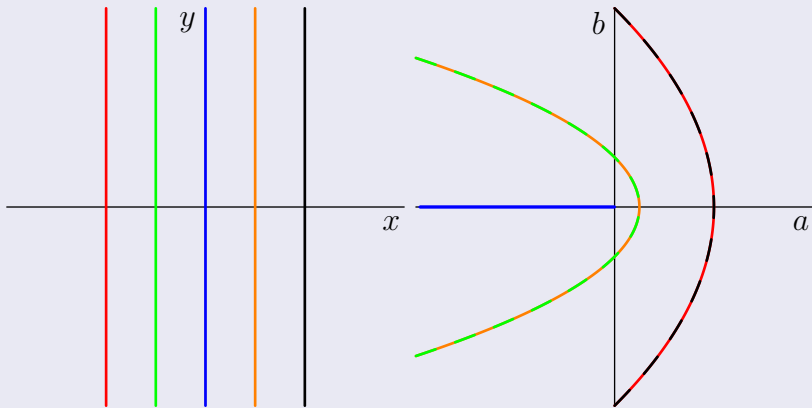
Natural selection didn't prepare you for this.

We will try to view complex functions as **maps** from the plane to itself.

Every complex function $f(x + iy)$ can be written as $f(x + iy) = u(x, y) + iv(x, y)$, where u and v are **real-valued functions of two real variables**.

Usually we 'graph' complex functions by picking representative pieces of the plane and indicating where the **map** takes them.

an attempt to graph $f(z) = z^2$



another attempt to graph $f(z) = z^2$

