Numbers, Powers and Logarithms

December 18, 2020

Types of Numbers

Integers

$\ldots, -3, -2, -1, 0, 1, 2, 3$

Rational Numbers

Ratio of two integers p/q where q is positive

Real Numbers

A quantity x that has *decimal expansion* and is of form -

$x = n + 0.d_1 d_2 d_3 \ldots$

Example of real numbers which are not rational are -

$\pi = 3.14159 \ldots$

$\phi = 2.6280339\ldots$ the *golden ratio* $(1+\sqrt{5})/2$

Complex Numbers

They are of form — $z = x + iy$ where $i^2 = -1$

$|z| = \sqrt{x^2 + y^2}$

Complex Conjugate $\bar{z} = x - iy$

$z\bar{z} = x^2 + y^2 = |z|^2$