Types of Real Numbers

Natural numbers are our counting numbers: \{1, 2, 3, \ldots \}.

Whole numbers include all natural numbers, as well as zero: \{0, 1, 2, \ldots \}.

Integers include all whole numbers and their negatives: \{\ldots, -1, 0, 1, \ldots \}.

Rational numbers include all numbers we can write in the form \(\frac{m}{n}\), where \(m\) and \(n\) are relatively prime integers (no common factor except 1). This includes integers (remember, for example, \(5 = \frac{5}{1}\)) and reduced fractions, as well as terminating and repeating decimals.

Irrational numbers are numbers that cannot be written in the form \(\frac{m}{n}\), where \(m\) and \(n\) are relatively prime integers. This includes irrational constants like \(\pi\), as well as all decimals that do not terminate or repeat.