IRRATIONAL NUMBERS PROPERTIES

Quick Reference Chart & Guide

Definition: A real number that cannot be expressed as a simple fraction (ratio) of two integers. Their decimal expansions are non-terminating and non-repeating.

Property	Description	Examples
Non-Terminating	The digits after the decimal point continue infinitely without ever ending.	**âˆš2** (1.41421...)
Non-Repeating	There is no periodic sequence or pattern in the decimal representation.	**Ï€** (3.14159...)
Addition / Subtraction	The sum of a rational and an irrational number is always irrational.	3 + **âˆš5**
Multiplication	The product of a non-zero rational and an irrational number is irrational.	2 Ã— **Ï€**
Density	Between any two real numbers, there is at least one irrational number.	Infinite Sets

Common Constants

Ï€ (Pi)
Circle ratio: 3.1415...
e (Euler's)
Growth constant: 2.7182...
Ï† (Phi)
Golden ratio: 1.6180...