

A bit of math

- Introduction: real world vs math
- Arithmetic
 - history
 - direct
 - Decimal system
 - Binary system
 - Automation
- Numbers
 - Counting Numbers
 - Natural Numbers
 - Integers
 - Fractions & Rational Numbers
 - Real numbers
 - Imaginary Numbers
 - Complex Numbers
- Algebra: uses symbols to represent things
 - Indirect
 - Computation
- Linear Algebra
 - vectors
 - matrices
 - system of linear equations
 - inverse
 - decomposition
 - eigenvectors & eigenvalues
- Calculus: change and motion.
 - Differentiation
 - Integration

- Optimization
- Geometry: shapes, sizes, relative positions, and properties of space
- Log
 - origin
 - natural log
- Probability and Statistics: Deals with chance and uncertainty.
 - Normal vs Pareto
 - Turkey Problem
 - Ensemble probability: N agents do the action (gambling)
 - Time probability (path dependence): repeating the same thing many times (gambling; leading to ruin).
- Markov Processes
- Fourier series
- Logic
- Set Theory
- Discrete Mathematics: countable, distinct elements.
- Number Theory: Study of integers and their properties.
- Trigonometry: triangles, especially right triangles, and the relationships between angles and side lengths.
- Topology: shapes and spaces that can be stretched or deformed without tearing.
- Mathematical Logic & Foundations: logical structure of mathematics itself.
- Applied Mathematics: math to solve real-world problems.