




GAMING
ON A **MAC**

THE MAP OF MATHEMATICS

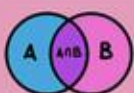
FOUNDATIONS

FUNDAMENTAL RULES

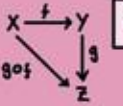
MATHEMATICAL LOGIC

$$p \Rightarrow q$$

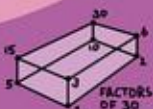
SET THEORY



CONSISTENT SET OF AXIOMS?
GÖDEL INCOMPLETENESS THEOREMS



CATEGORY THEORY



ORDER THEORY

THEORY OF COMPUTATION

00011100

$P \neq NP?$

COMPLEXITY THEORY

PARTITION THEORY



PERMUTATION GROUP

COMBINATORICS



GRAPH THEORY



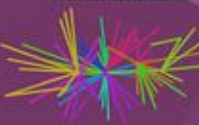
PURE MATHEMATICS

TOPOLOGY



DIFFERENTIAL GEOMETRY

COMPLEX ANALYSIS



BUTTERFLY EFFECT

CHAOS THEORY



FRactal GEOMETRY



DYNAMICAL SYSTEMS

FLUID FLOW



ECOSYSTEMS



NUMBER THEORY

PRIME NUMBERS
3, 11, 47, 907

INFINITY
 ∞

COMBINATORICS



GRAPH THEORY



LINEAR ALGEBRA

$$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \cdot \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix} = \begin{bmatrix} 17 & 26 \\ 38 & 47 \end{bmatrix}$$

MATRICES

$$\begin{pmatrix} 6 & 7 \\ -3 & 2i \end{pmatrix}$$

VECTORS

$$\vec{x}$$

STRUCTURES

ALGEBRA

$$x^2 - 4x - 5 = 0$$

$$x^2 - 4x - 36 = 0$$

$$(x+3)(x-12) = 0$$

EQUATION

$$y = mx + c$$

SPACES

CHANGES

GEOMETRY

TRIGONOMETRY

CALCULUS

DIFFERENTIAL

GRADIENT

$$\frac{dy}{dx}$$

INTEGRAL

$$\int_a^b f(x) dx$$

DIFFERENTIAL EQUATIONS

VECTOR CALCULUS

FLUID FLOW

ECOSYSTEMS

CHAOS THEORY

COMPLEX ANALYSIS

TOPOLOGY

DIFFERENTIAL GEOMETRY

FRactal GEOMETRY

DYNAMICAL SYSTEMS

FLUID FLOW

ECOSYSTEMS

CARDINAL NUMBERS

\aleph_0 ALPH NULL

OCTONION

$\{e, e^2, e^4, e^8, e^{16}, e^{32}, e^{64}, e^{128}\}$

QUATERNION

$a+bi+cj+dk$

PI
 π

EXPONENTIAL
 e

COMPLEX NUMBERS

$3, i, 4+3i, -4i$

REAL NUMBERS

$-4\pi, \sqrt{2}, e$

RATIONAL NUMBERS

$-7, \frac{1}{2}, 2.32$

INTEGERS

$\dots -2, -1, 0, 1, 2 \dots$

NATURAL NUMBERS

$1, 2, 3, 4, 5 \dots$

ARITHMETIC
 $+$
 $-$
 \times
 \div

NUMBER SYSTEMS

PERMA
c. 820

INDIA
c. 628

FIRST ZERO

NEGATIVE NUMBERS

-8
 π

CHINA
200 BCE

GREECE
600-300 BCE

EGYPT
FIRST EQUATION
3000 BCE

50,000 BCE

600-300 BCE

600-300 BCE

600-300 BCE

600-300 BCE

600-300 BCE

600-300 BCE

600-300 BCE

600-300 BCE

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600-300 BCE

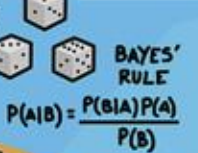
600-300 BCE

600-300 BCE

CRYPTOGRAPHY



PROBABILITY



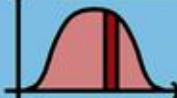
$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

COMPUTER SCIENCE

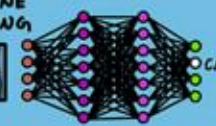
TURING MACHINE

```
while awake:
    do_science()
    if self.tired():
        awake = False
        self.repair_brain()
```

STATISTICS

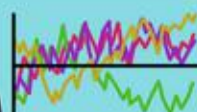


MACHINE LEARNING



OPTIMIZATION

MATHEMATICAL FINANCE



ECONOMICS

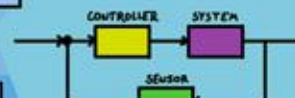


GAME THEORY



APPLIED MATHEMATICS

ENGINEERING

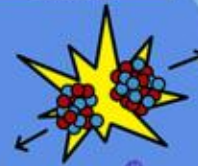


CONTROL THEORY

BIOMATHEMATICS

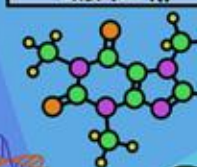


MATHEMATICAL PHYSICS



THEORETICAL PHYSICS

MATHEMATICAL CHEMISTRY



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YOUTUBE: THE MAP OF MATHEMATICS