**Timeline of Mathematics: Branches & Mathematicians**

**Ancient Era (before 500 CE)**

* **Arithmetic & Number Systems**
  + Sumerians & Babylonians → place-value, base-60 system.
  + Egyptians → fractions, practical arithmetic.
  + India → zero (Brahmagupta, 7th c. later).
* **Geometry**
  + **Pythagoras** (Greece, ~570–495 BC) → Pythagorean theorem.
  + **Euclid** (Greece, ~300 BC) → *Elements*, systematic geometry.
  + **Archimedes** (Greece, ~287–212 BC) → areas, volumes, mechanics.
* **Trigonometry**
  + **Hipparchus** (Greece, 2nd c. BC) → trigonometric tables.
  + **Aryabhata** (India, 5th c.) → sine functions.

**Medieval Era (500–1500 CE)**

* **Algebra**
  + **Omar Khayyam** (Persia, 11th c.) → cubic equations.
* **Trigonometry (expanded)**
  + **Al-Tusi** (Persia, 13th c.) → spherical trigonometry.
* **Transmission to Europe**
  + **Fibonacci** (Italy, 12th–13th c.) → *Liber Abaci*, Hindu–Arabic numerals.

**Renaissance & Early Modern (1500–1700)**

* **Algebra (symbolic)**
  + **François Viète** (France, 16th c.) → symbolic algebra.
* **Probability**
  + **Pascal & Fermat** (France, 17th c.) → probability theory.
* **Analytic Geometry**
  + **René Descartes** (France, 17th c.) → Cartesian coordinates.
* **Calculus**
  + **Isaac Newton** (England, 17th c.) → calculus, physics.
  + **Gottfried Leibniz** (Germany, 17th c.) → calculus, notation.

**18th Century (1700s)**

* **Analysis**
  + **Euler** (Switzerland) → functions, infinite series, graph theory.
  + **Lagrange** (Italy/France) → calculus of variations, mechanics.
* **Probability & Statistics**
  + **Jakob Bernoulli** (Switzerland) → Law of Large Numbers.

**19th Century (1800s)**

* **Number Theory**
  + **Gauss** (Germany) → *Disquisitiones Arithmeticae*.
* **Non-Euclidean Geometry**
  + **Lobachevsky** (Russia), **Bolyai** (Hungary) → hyperbolic geometry.
  + **Riemann** (Germany) → Riemannian geometry (basis of relativity).
* **Analysis & Rigour**
  + **Cauchy** (France), **Weierstrass** (Germany) → rigorous foundations.
* **Algebra (abstract)**
  + **Évariste Galois** (France) → group theory.
* **Logic**
  + **George Boole** (England) → Boolean algebra.

**20th Century (1900s)**

* **Foundations & Logic**
  + **David Hilbert** (Germany) → Hilbert’s problems.
  + **Kurt Gödel** (Austria) → incompleteness theorems.
* **Topology**
  + **Henri Poincaré** (France, late 19th–early 20th) → algebraic topology.
  + **Brouwer** (Netherlands) → topological invariants.
* **Probability & Statistics**
  + **Karl Pearson** (England) → modern statistics.
* **Computer Science & Discrete Math**
  + **Alan Turing** (England) → Turing machine, computability.
  + **Claude Shannon** (USA) → information theory.
  + **Paul Erdős** (Hungary) → combinatorics, graph theory.
* **Applied Math**
  + **John von Neumann** (Hungary/USA) → game theory, quantum mechanics, computer science.
* **Number Theory (revived)**
  + **Srinivasa Ramanujan** (India, early 20th c.) → infinite series, partitions.

**21st Century (2000s–Today)**

* Mathematics expands into **cryptography, data science, AI, quantum computing**.