

Notes: A Brief History of Algebra, Part 1

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A global provenance

Ancient Near East → Ancient Greece → India → medieval Islamic empire → late Medieval and Renaissance Europe

I. The “pre-mathematical” era (40,000 to 5000 B.C.E.)

- Quantity
- Design

II. The math of early civilization (5000 to 500 B.C.E)

- The rise of math as a specific activity
- A professional pursuit
- The influence of bureaucracy
- Death and taxes
- Papyrus vs. clay tablets vs. bamboo

A. The Egyptians

- Base ten, repeating symbols
- Adding and doubling
- “The n th part”
- Linear equations
- Measurement: volume and area
- Overwhelmingly practical

B. The Babylonians

- Base 60 (sexagesimal)
- Complex operations, products, reciprocals
- “The 60th part”
- Linear equations and some quadratic
- Measurement: volume and area
- Rise of academic and “recreational” math
- Driven by method
- Vestigial impact

C. The Chinese

- Less impact
- Problem/solution texts, as well
- *The Nine Chapters on the Mathematical Art*, Lin Hui, 263 C.E.
- Practical and formalized
- The Silk Road influence
- Proportionality
- Informal proofs