

HISTORY OF MATHEMATICS | MATLAB PROJECT

Counting the Unknown

Analytic rubric for historical, mathematical, and computational understanding

Scoring: Five criteria are scored from 1 to 4 for a total of 20 points. A score of 0 may be assigned when a required component is missing or does not provide assessable evidence.

Criterion	4 - Exemplary	3 - Proficient	2 - Developing	1 - Beginning
Historical understanding	Accurately situates the Sunzi problem and carefully distinguishes the historical procedure from the modern theorem.	Accurately describes the problem and recognizes the distinction between historical and modern formulations.	Provides limited historical context or partially conflates the procedure with the modern theorem.	Contains major historical inaccuracies or little meaningful historical interpretation.
Mathematical reasoning	Correctly solves and verifies all systems and clearly explains why 70, 21, and 15 work.	Calculations are mostly correct and the coefficient explanation demonstrates sound understanding.	Some correct reasoning is present, but the coefficient explanation or solution-family reasoning is incomplete.	Reasoning is largely incorrect, unsupported, or absent.
MATLAB implementation	Code is correct, readable, well organized, appropriately documented, and works across all required tests.	Code functions correctly on required cases with only minor issues in clarity or documentation.	Code is partially functional or depends on substantial correction; testing or documentation is limited.	Code is missing, nonfunctional, or shows little understanding of the algorithms.
Computational analysis	Uses multiple tests and verification to compare algorithms, analyze efficiency, and explain coprime and non-coprime cases.	Uses appropriate tests and verification and makes a reasonable comparison of the algorithms and assumptions.	Reports some results but offers limited verification, comparison, or analysis of assumptions.	Reports isolated output without meaningful verification or interpretation.
Communication and reflection	Writing is clear, precise, and well organized; reflection insightfully integrates historical, mathematical, and computational perspectives.	Writing is clear and the reflection addresses all three perspectives with appropriate support.	Writing or organization is uneven; reflection is general or gives unequal attention to the three perspectives.	Writing is difficult to follow or the reflection is superficial, incomplete, or missing.

Score summary

Historical understanding	_____ / 4	Mathematical reasoning	_____ / 4
MATLAB implementation	_____ / 4	Computational analysis	_____ / 4
Communication and reflection	_____ / 4	Total	_____ / 20

Instructor comments: