HISTORY OF MATHEMATICS — ASSIGNMENT ONE

(1) (3 points) Egyptian arithmetic was based on addition. How was multiplication calculated?
Multiplication was computed by duplication (repeated doubling).

(2) (3 points) When were Euclid's "Elements" written?
∼300 BCE

(3) (4 points) Zu Chongzhi provided a very close approximation of π. What was its value?
355/113, which is correct to 6 decimal places.

(4) (3 points) Could you define "amicable numbers"?
Two different numbers such that the sum of the proper divisors of each equals the other.

(5) (3 points) Who wrote "Ars Magna"?
Gerolamo Cardano.

(6) (1 points) Who introduced the modern notation for differentiation and integration?
Gottfried Wilhelm Leibniz.

(7) (2 points) "La Géométrie" was an appendix of an important work by René Descartes. Which work was it?
Discourse on Method

(8) (4 points) Could you state the Euler-Lagrange equation?
$\frac{\partial L}{\partial y} - \frac{d}{dx}\left(\frac{\partial L}{\partial y'}\right) = 0$

(9) (3 points) Who realised that matrices could represent linear transformations?
Arthur Cayley.

(10) (2 points) Who wrote "On the Hypotheses which Lie at the Bases of Geometry"?
Bernhard Riemann.

(11) (3 points) Who wrote "Grundzüge der Mengenlehre" in 1914, providing the axioms of topological spaces?
Felix Hausdorff.

(12) (1 points) Who proved the Poincaré conjecture?
Grigori Perelman.

Date: 16 April 2026.