Historical Milestones in Geometry

Geometry · Answer Key · 18 Questions

1. Which mathematician, in his work 'De sphaera et cylindro', famously requested that the figure of a sphere inscribed in a cylinder be carved onto his tombstone?

A) Archimedes
B) Euclid
C) Apollonius of Perga
D) Diophantus

2. The 'Thébaut's theorem' in geometry, which concerns the inscribed circles of a triangle, was first posed as a problem in which publication in 1938?

A) American Mathematical Monthly
B) The Mathematical Gazette
C) Journal de Mathématiques Élémentaires
D) Annals of Mathematics

3. Who is credited with the first recorded measurement of the Earth's circumference using geometric principles and the angle of the sun at Syene and Alexandria?

A) Eratosthenes
B) Ptolemy
C) Hipparchus
D) Aristarchus

4. The 'Geometry of the Indivisibles' was a precursor to calculus developed in the 17th century by which Italian mathematician?

A) Bonaventura Cavalieri
B) Evangelista Torricelli
C) Girolamo Cardano
D) Luca Pacioli

5. Which ancient Greek mathematician wrote 'Conics', a monumental eight-book treatise that introduced the terms 'parabola', 'ellipse', and 'hyperbola'?

A) Apollonius of Perga
B) Thales of Miletus
C) Pythagoras
D) Zenodorus

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6. The 'Problem of Apollonius' asks for the construction of circles that are tangent to how many given circles?

A) Three
B) Two
C) Four
D) Five

7. Who authored 'La Géométrie' in 1637, which fundamentally bridged the gap between algebra and geometry by introducing coordinate geometry?

A) René Descartes
B) Pierre de Fermat
C) Blaise Pascal
D) Gottfried Wilhelm Leibniz

8. In 1829, which mathematician published the first account of non-Euclidean hyperbolic geometry, challenging the parallel postulate?

A) Nikolai Lobachevsky
B) Carl Friedrich Gauss
C) János Bolyai
D) Bernhard Riemann

9. The 'Seven Bridges of Königsberg' problem, which laid the foundation for graph theory and topology, was solved by whom in 1736?

A) Leonhard Euler
B) Joseph-Louis Lagrange
C) Daniel Bernoulli
D) Pierre-Simon Laplace

10. Which Islamic mathematician and astronomer wrote the 'Discussion on the Difficulties in Euclid' (Sharh al-Musadarat), attempting to prove the parallel postulate?

A) Omar Khayyam
B) Al-Khwarizmi
C) Ibn al-Haytham
D) Al-Biruni

11. The 'Four Color Theorem', a problem in topological geometry regarding map coloring, was first conjectured in what year?

A) 1852
B) 1901
C) 1789
D) 1976

12. Who was the first person to define the 'fractal' dimension and identify the mathematical properties of the Koch snowflake?

A) Benoit Mandelbrot
B) Helge von Koch
C) Felix Hausdorff
D) Gaston Julia

13. The 'Pons Asinorum' (Bridge of Donkeys) is a famous name given to which theorem in Euclid's 'Elements'?

A) Base angles of an isosceles triangle are equal
B) Pythagorean theorem
C) Sum of angles in a triangle
D) External angle theorem

14. In 1900, David Hilbert proposed 23 problems at the International Congress of Mathematicians; which number was the problem regarding the foundations of geometry?

A) 1
B) 10
C) 5
D) 20

15. Which Roman architect and engineer recorded the geometric proportions used in construction in his work 'De Architectura'?

A) Vitruvius
B) Frontinus
C) Apollodorus
D) Ctesibius

16. The discovery of the 'Penrose tiling' in 1974 allowed for what type of geometric pattern that does not repeat periodically?

A) Aperiodic
B) Symmetric
C) Fractal
D) Euclidean

17. Who was the first woman known to have made significant contributions to the study of geometry and taught at the Neoplatonic school in Alexandria?

A) Hypatia
B) Theano
C) Aglaonice
D) Aspasia

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18. The 'Great Triangle' or 'Triangle of Reuleaux' is a curve of constant width. To which century does the formal mathematical study of these curves trace back?

A) 18th century
B) 16th century
C) 19th century
D) 14th century