

Historical Milestones in Calculus

Calculus · Practice Test · 10 Questions

1. Which ancient Greek mathematician developed methods for calculating areas and volumes that are considered precursors to integral calculus?

- A) Archimedes
- B) Euclid
- C) Pythagoras
- D) Ptolemy

2. In the 17th century, who is credited with independently developing a system of infinitesimal calculus that laid much of the groundwork for modern calculus, although his notation differed significantly from Newton's?

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

3. The development of calculus is famously associated with a dispute over priority between two prominent mathematicians in the late 17th century. Who were they?

- A) Isaac Newton and Gottfried Wilhelm Leibniz
- B) Galileo Galilei and Johannes Kepler
- C) René Descartes and Pierre de Fermat
- D) Leonhard Euler and Joseph-Louis Lagrange

4. Which mathematician is recognized for his seminal work 'Philosophiæ Naturalis Principia Mathematica' (1687), where he applied his newly developed methods of calculus to explain the laws of motion and universal gravitation?

- A) Isaac Newton
- B) Gottfried Wilhelm Leibniz
- C) Christiaan Huygens
- D) Robert Hooke

5. The concept of the limit, crucial for the formal definition of calculus, was rigorously developed much later than the initial discoveries. Who is often credited with providing a more robust and formal foundation for limits and continuity in the 19th century?

- A) Augustin-Louis Cauchy
- B) Leonhard Euler
- C) Brook Taylor
- D) Brook Taylor

6. Before the formalization of calculus, the concept of infinitesimals was used. Which mathematician, known for his contributions to analytic geometry, also made significant early contributions to the study of tangents and areas using methods related to infinitesimals?

- A) Pierre de Fermat
- B) Gottfried Wilhelm Leibniz
- C) Isaac Newton
- D) René Descartes

7. The Fundamental Theorem of Calculus, which establishes the relationship between differentiation and integration, was a cornerstone discovery. Which mathematician is credited with independently discovering this theorem?

- A) Isaac Newton and Gottfried Wilhelm Leibniz
- B) Leonhard Euler
- C) Joseph-Louis Lagrange
- D) Carl Friedrich Gauss

8. In the development of calculus, the notation for differentiation ($\frac{dy}{dx}$) and integration ($\int$) is largely attributed to which mathematician?

- A) Gottfried Wilhelm Leibniz
- B) Isaac Newton
- C) Pierre de Fermat
- D) Blaise Pascal

9. Who is considered one of the most prolific mathematicians in history and made extensive contributions to calculus, including the development of many standard notations and techniques, particularly in the 18th century?

- A) Leonhard Euler
- B) Isaac Newton
- C) Gottfried Wilhelm Leibniz
- D) Bernoulli family

10. The rigorous epsilon-delta definition of a limit, which provided a solid foundation for calculus, was a key achievement of 19th-century mathematics. Which mathematician is most closely associated with this definition?

- A) Augustin-Louis Cauchy
- B) Karl Weierstrass
- C) Bernard Bolzano
- D) Gotthelf Fischer