

2003 MU ALPHA THETA NATIONAL CONVENTION
HISTORY OF MATHEMATICS

NOTA means **None Of The Above**.

1. Which of the following was born in the year that Galileo died?
 - A. Descartes
 - B. Newton
 - C. Euler
 - D. Fermat
 - E. NOTA

2. While not born there, this mathematician spent many years in the Netherlands.
 - A. Fermat
 - B. Euler
 - C. Descartes
 - D. Leibniz
 - E. NOTA

3. The following were all scientific colleagues of Newton except:
 - A. Boyle
 - B. Halley
 - C. Wallis
 - D. Wren
 - E. NOTA

4. This mathematician said, "Truth is the offspring of silence and unbroken meditation."
 - A. Fermat
 - B. Descartes
 - C. Euler
 - D. Leibniz
 - E. NOTA

5. This mathematician laid the foundation for what is now known as Analytic Geometry in his *Geometry*.
 - A. Newton
 - B. Fermat
 - C. Euler
 - D. Descartes
 - E. NOTA

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6. This mathematician was originally trained in law and worked as a diplomat. He wanted all knowledge to be applied and considered universities as possessing knowledge but no judgement. He died neglected and alone.
- A. Leibniz
 - B. Newton
 - C. Fermat
 - D. Descartes
 - E. NOTA
7. His most outstanding contribution to mathematics is the founding of the theory of numbers.
- A. Fermat
 - B. Newton
 - C. Euler
 - D. Leibniz
 - E. NOTA
8. The calculus was created primarily to treat the major scientific problems of the 17th century. The following were the major types of problems, except:
- A. To find the tangent to a curve.
 - B. To find the maximum value of a function.
 - C. To find the length of curves.
 - D. The squaring of the circle.
 - E. NOTA
9. The following are true about Newton, except:
- A. Constructed many working mechanical models while still a youth.
 - B. Never enjoyed teaching.
 - C. Was Master of the Mint.
 - D. Became a Member of Parliament.
 - E. NOTA
10. The terms, **coordinate**, **abscissa**, and **ordinate** were coined by this mathematician.
- A. Descartes
 - B. Fermat
 - C. Leibniz
 - D. Euler
 - E. NOTA

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11. The following are all examples of Fermat's investigations, except:
- A. If p is a prime and a is a prime to p , then $a^{p-1} = 1$ is divisible by p .
 - B. Every odd prime can be expressed as the difference of two squares in one and only one way.
 - C. Used i for $\sqrt{-1}$.
 - D. There do not exist positive integers x , y , and z , such that $x^4 + y^4 = z^2$.
 - E. NOTA
12. This mathematician's productivity was remarkable. He published papers on calculus, differential equations, analytic and differential geometry of curves and surfaces, the theory of numbers, series and the calculus of variation. He created analytical mechanics and the subject of rigid body mechanics. His theory of the tides and his work on the design and sailing of ships aided navigation.
- A. Fermat
 - B. Newton
 - C. Euler
 - D. Leibniz
 - E. NOTA
13. The following can all be considered precursors of the development of calculus, except:
- A. Archimedes
 - B. Stevin
 - C. Cavalieri
 - D. Barrow
 - E. NOTA
14. The following are all works written by Newton, except:
- A. *Principia Philosophae*
 - B. *Principia Mathematica*
 - C. *Opticks*
 - D. *The Method of Fluxions and Infinite Series*
 - E. NOTA

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15. This mathematician proposed and solved the problem of determining the number of positive integers less than a given positive integer n and prime to n . This number is now noted as $\phi(n)$.
- A. Newton
 - B. Fermat
 - C. Euler
 - D. Descartes
 - E. NOTA
16. This mathematician introduced and used a method of proof called "The method of infinite descent."
- A. Fermat
 - B. Euler
 - C. Descartes
 - D. Newton
 - E. NOTA
17. This mathematician spent most of his time working in the courts of Frederick of Prussia and Catherine the Great of Russia.
- A. Leibniz
 - B. Fermat
 - C. Descartes
 - D. Euler
 - E. NOTA
18. The following are all true about Euler, except:
- A. Used Σ for the summation sign.
 - B. Developed the formula $e^{ix} = \cos x + i \sin x$.
 - C. Worked in the St. Petersburg Academy for 17 years.
 - D. Was a professor at Basel University.
 - E. NOTA

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19. This mathematician wrote the short treatise *Ad Locum Planos et Solidos Isagoge*, not published until after his death. In it he established that every equation of first degree represents a straight line and by using the appropriate rotation and/or translation of the coordinate axes, he was able to reduce the general equation of the second degree to one of the familiar standard forms for the parabola, the ellipse, the circle, and the hyperbola.
- A. Euler
 - B. Newton
 - C. Descartes
 - D. Fermat
 - E. NOTA
20. If A, B, C, and D are any four collinear points, then $(AD)(BC) + (BD)(CA) + (CD)(AB) = 0$. This is called:
- A. Newton's Theorem
 - B. Fermat's Theorem
 - C. Euler's Theorem
 - D. Leibniz's Theorem
 - E. NOTA
21. The problem of the points can be considered to be the origin of the science of probability. This led to a remarkable correspondence between Pascal and this mathematician.
- A. Fermat
 - B. Descartes
 - C. Euler
 - D. Newton
 - E. NOTA
22. This mathematician solve the Königsberg Bridges Problem.
- A. Newton
 - B. Leibniz
 - C. Fermat
 - D. Euler
 - E. NOTA

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23. Oldenburg in 1673 asked for the sum of the infinite series:

$$\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \frac{1}{4^2} + \dots$$

Many famous mathematicians could not find the answer, but the answer, $\frac{\pi^2}{6}$, was

found by:

- A. Leibniz
- B. Euler
- C. Newton
- D. Jakob Bernoulli
- E. NOTA

24. This mathematician maintained a voluminous correspondence with many great mathematicians of his day and served as a clearing house for Descartes' ideas.

- A. Viète
- B. Mersenne
- C. Mydorge
- D. Cassini
- E. NOTA

25. This book unified the disparate theories of Galileo and Kepler into a single coherent mathematically and experimentally supported whole. It includes: how tides are produced, how comets travel through the heavens, and laid the cornerstone for understanding dynamics and mechanics.

- A. Euler's *Mechanica*
- B. Descartes' *Dioptrique*
- C. Fermat's *Methods Ad Disquirendam Maximam et Minimam*
- D. Newton's *Principia*
- E. NOTA

26. The rule for finding the n^{th} derivative of the product of two functions is still referred to as:

- A. Leibniz' Rule
- B. Fermat's Rule
- C. Euler's Rule
- D. Newton's Rule
- E. NOTA

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27. One of this mathematician's ideas was what he called *characteristica generalis*, a symbolic language into which all processes of reasoning could be translated. The genesis of this idea can be found in *De Arte Combinatoria*.
- A. Newton
 - B. Descartes
 - C. Fermat
 - D. Liebnez
 - E. NOTA
28. It is now generally agreed that the calculus was independently invented by Newton and Liebnez. The following are all properties of the calculus Liebnez thought of, except:
- A. He thought in terms of sequences of infinitesimally close values.
 - B. The fundamental concept in his calculus was the differential.
 - C. He conceived the integration as summation so the fundamental theorem has to be proven.
 - D. His symbolism is far more convenient and flexible.
 - E. NOTA
29. This mathematician had three dreams in the course of one night while sleeping in an overheated room and believed these dreams set him on the path to fulfilling his destiny.
- A. Fermat
 - B. Descartes
 - C. Newton
 - D. Liebnez
 - E. NOTA
30. Of Euler, Descartes, Fermat, Liebnez, and Newton, the one that lived the longest is:
- A. Euler
 - B. Descartes
 - C. Fermat
 - D. Liebnez
 - E. Newton