

History of Mathematics: 1500 to 1800

FAMAT State Convention 2002

For all questions, answer E. “Nota” means none of the above answers is correct.

1. What mathematician used trigonometry in order to project the spherical Earth onto a circumscribed cylinder in which latitudes and longitudes were mapped into a “rectangular lattice of straight lines”?

- a) Rheticus b) Galois c) Piazzzi d) Mercator e) Nota

2. Who wrote Geometria rotunda in 1583 and was the first to use the terms—secant and tangent?

- a) Thomas Finck b) Jean Buridan c) Nicole Oresme d) Zerah Colburn e) Nota

3. In 1533, Gemma Frisius invented a surveying method that involved joining different locations through a network of triangles. This method is called:

- a) Transcription b) Triangulation c) Curvilinear Analysis d) Tensor Method e) Nota

4. Who wrote the following quotation in the preface of his 1543 book, which introduced Europe to mathematical astronomy: “I may well presume, most Holy Father, that certain people, as soon as they hear that in this book about the Revolutions of the Spheres of the Universe I ascribe movement to the Earthly globe, will cry out that, holding such views, I should at once be hissed off the stage...”?

- a) Dante b) Copernicus c) Bacon d) Galilei e) Nota

5. Newton’s mathematic works and Locke’s philosophical works incited what eighteenth-century intellectual movement associated with sparking the French Revolution?

- a) *Ancien Regime* b) Glorious Revolution c) Renaissance d) Enlightenment e) Nota

6. Edward has airplane tickets to visit the home country of Leibniz—author of “A new method for maxima and minima, as well as tangents, which is not obstructed by fractional and irrational quantities, and a curious type of calculus for it.” In which modern-day country will the airplane land?

- a) Spain b) Denmark c) Sweden d) Italy e) Nota

7. Which of the following solids did Johannes Kepler **NOT** use to explain why there were only six planets in the solar system (in 1596 there were only six planets known to exist)?

- a) Cube b) Tetrahedron c) Dodecahedron d) Icosahedron e) Nota

8. Pierre Simon de Laplace—a mathematician of the 1700's—supported the nebular hypothesis, which stated the solar system evolved from a condensing cloud of gases. What Romantic philosopher, who also penned The Critique of Pure Reason and The Critique of Practical Reason, first proposed the nebular theory?

- a) Hume b) Camus c) Hobbes d) Kant e) Nota

9. Which of the following mathematicians was **NOT** an Archimedean scholar who studied centers of gravity during the late 1500's or early 1600's?

- a) Commandino b) Stevin c) Guldin d) Tartaglia e) Nota

10. Isaac Newton left Trinity College and returned to his family estate in Woolsthorpe during 1664. Why did Newton leave Trinity College?

- a) Argument with his mentor b) The Great Plague devastated London
c) Death of his sister, Elizabeth d) Trinity College expelled him e) Nota

11. The Bernoulli family boasted many famous mathematicians, including Jacob, Johann, and Niklaus. This family primarily hailed from what European country in the 1700's?

- a) Italy b) Portugal c) France d) Switzerland e) Nota

12. The Prime Number Theorem states, "The number of primes less than n is approximately n divided by the logarithm of n ." What mathematician by age 15 had conjectured the Prime Number Theorem in 1792?

- a) de Moivre b) Raphson c) Gauss d) Tschirnhaus e) Nota

13. Leibniz favored which of the following mathematical academies?

- a) Accademia di Cimento in Florence b) Royal Society of London
c) Academie Royale des Sciences in Paris d) Academy of Sciences at Yale e) Nota

14. Mrs. Goldiez, your ingenious math teacher, has selected you to do a poster on Rene Descartes. Which of the following would be the most appropriate title for your poster?

- a) Rene Descartes: Inventor of the “Enigma” b) Rene Creates “Erlangen Program”
c) Descartes Develops Coordinate Plane d) Rene Writes Iphigenia at Tauris e) Nota

15. Let A equal the number of letters in the last name of the mathematician who introduced “i” as a means of expressing the square-root of -1 . Let B equal the rounded whole number value of the number “e” named after this same man. What is $A + B$?

- a) 8 b) 6 c) 10 d) 7 e) Nota

16. Pierre de Fermat was the founder of modern number theory; he invented a list of numbers known as “Fermat Numbers.” 65,537 is one of the largest Fermat Numbers. Which of the following is one of the characteristics constituting a Fermat Number?

- a) The number is perfect b) The number is prime c) The number is divisible by 7
d) The number is a Platonic cube e) Nota

17. According to many historians, mathematics reached a state of stagnancy from 1750-1800 in which of the following countries, since mathematicians did not adopt continental calculus?

- a) Great Britain b) France c) Germany d) Russia e) Nota

18. Born in 1736, this mathematician was appointed to the court of Frederick the Great, who dubbed this man “the greatest mathematician in Europe.” He wrote papers on such topics as the theory of sound, dynamics, vibrating strings, the calculus of variation, and the three-body problem. Name this man.

- a) Henri b) Borgia c) Lalande d) Laplace e) Nota

19. In 1509, Pacioli translated Euclid's Elements for the first time into Italian. This translation inspired what artist to create inventive drawings of Platonic solids?
- a) da Vinci b) Giotto c) El Greco d) Donatello e) Nota
20. This mathematician authored Essay on Conics and invented the “cat’s cradle” proof. Name this man who created the first calculating machine and had acute dyspepsia.
- a) Frege b) Galois c) Pascal d) Poisson e) Nota
21. During the 1580’s, what religious group helped spread mathematics in the Iberian Peninsula and founded the Mathematical Academy of Madrid, which provided instruction in perspective theory, solving equations, and chart-making?
- a) Jesuits b) Methodists c) Calvinists d) Baptists e) Nota
22. Jennifer is going through her grandmother’s attic and finds a copy of a book by Kepler. She begins reading the book and discovers the 1611 manuscript discusses the topic of optics. The copy of this book is so old she cannot read the title; however, she remembers the title from her history of mathematics class. What is the title of the book?
- a) Nova vita b) Dioptrice c) Mare nostrum d) Siderius nuncius e) Nota
23. Emily wants to read a biography concerning the inventor of logarithms. What mathematician will Emily be reading about?
- a) Vieta b) Napier c) Cavalieri d) Wittgenstein e) Nota
24. This man divided mathematics into different branches: Perspective, Musike, Statike, Cosmographie, Navigation, and Zographie. Name this mathematician who also coined the term—“British Empire.”
- a) Billingsley b) Dee c) Mayer d) Jackson e) Nota
25. What mathematician speculated in a letter he wrote that “every even number is the sum of two primes, and every odd number larger than 2 is the sum of three primes”?
- a) Lalande b) Harriot c) Minkowski d) Goldbach e) Nota

26. Mrs. Branson wants to visit the home of Nicolaus Copernicus—one of the first men of the Scientific Revolution to combine mathematics with empirical data. What modern-day country will she visit?

- a) Netherlands b) France c) Poland d) Belgium e) Nota

27. Napoleon once questioned the author of Traite de Mecanique Celeste why the book did not mention God as the creator of the universe. The author, a famous mathematician, responded, “Sir, I have no need for that hypothesis.” Who was this French mathematician that lived from 1749 to 1827?

- a) Dechy b) Laplace c) Lagrange d) Clairaut e) Nota

28. Historians have credited what two mathematicians as the founders of calculus?

- a) Newton and Montmort b) Cavalieri and Markov c) Larmor and Leibniz
d) Murphy and Descartes e) Nota

29. What mathematician—who also worked as a Dutch physicist—introduced the principle that “every point on the surface of an advancing wave is the source of new wavelets, which then form the new surface of an advancing wave”?

- a) Cavendish b) van Roost c) Boyle d) Huygens e) Nota

30. Mr. Jones wants to host a Halloween party, where everyone dresses-up as their favorite mathematician. He wishes to portray the man who won the 1776 French Academy Prize for the analysis of embankments, beams, and arches. This mathematician is most noted for his studies of electricity and magnetism. Who will Mr. Jones dress-up as?

- a) Borda b) Volta c) Coulomb d) D’Alembert e) Nota