

2022 Open History of Mathematics

Math in the USA!

1. Thomas Jefferson's proposal of a decimal currency for the United States was primarily influenced by the works of which Belgian mathematician, known for introducing the general use of decimals to Europe?

A. Michiel Coignet **B. Simon Stevin** **C. Johannes Stadius** **D. Essedat Deray** **E. NOTA**

2. In addition to predicting a solar eclipse and publishing many almanacs, what African-American mathematician is famous for his involvement in the surveying of Washington D.C?

A. Dudley Woodard **B. Clarence Stephens** **C. Kelly Miller** **D. Benjamin Banneker** **E. NOTA**

3. While training as a lawyer, what future President of the United States used Euclid's *Elements* as a studying tool in an attempt to sharpen his reasoning skills?

A. Harry Truman **B. Thomas Jefferson** **C. Abraham Lincoln** **D. Barack Obama** **E. NOTA**

4. What Harvard philosopher, also known as "The Father of Pragmatism", made large advancements in the field of logic with his 1877 publication *Illustrations of the Logic of Science*?

A. Robert Nozick **B. Charles Peirce** **C. James Williams** **D. John Dewey** **E. NOTA**

5. In what state legislature did Bill No. 246 attempt to legally mandate the value of pi as 3.2? Fortunately, due to the intervention of Professor C. A. Waldo, the bill never became law.

A. Alabama **B. Mississippi** **C. Florida** **D. Indiana** **E. NOTA**

6. Described as “one of the world’s leading centers for curiosity-driven basic research,” the Institute for Advanced Study, founded in 1930 by Abraham Flexner, is housed at what university? Some of its past guests include John von Neumann and Albert Einstein.

A. Princeton B. Stanford C. Harvard D. MIT E. NOTA

7. What organization, established in 1915, traces its roots to the 1894 founding of the American Mathematical Monthly by Benjamin Finkel? Its current engagements include hosting the American Mathematics Competition and publishing its namesake Press.

A. American Mathematical Society B. National Council of Teachers of Math C. Mu Alpha Theta D. Mathematical Association of America E. NOTA

8. After graduating from Cornell University in 1925, what mathematician became the first African-American to receive a PhD in Mathematics?

A. Craig Sutton B. David Blackwell C. Elbert Cox D. Charles Reason E. NOTA

9. Pushed out by the Nazi Regime, what mathematician took up a position at Bryn Mawr College in 1933 and eventually began lecturing at the Institute for Advanced Study?

A. Albert Einstein B. Emmy Noether C. Hermann Weyl D. David Hilbert E. NOTA

10. In 1936, the first Fields Medal was awarded to Lars Ahlfors for his work on Riemann surfaces and what American mathematician for his work on the Plateau Problem?

A. Alexander Grothendieck B. Stephen Smale C. Paul Cohen D. David Mumford E. NOTA

11. What Tuskegee Institute professor, known as the “Negro Genius” for entering the University of Chicago at 13 and earning a PhD at 19, later worked on the production of fissionable plutonium 239 with the Manhattan Project?

A. Lee Brown **B. Euphemia Hayes** **C. Joseph Dennis** **D. Ernest Wilkins** **E. NOTA**

12. What mathematician-philosopher reportedly discovered a deep logical contradiction in the US Constitution that could potentially turn the United States into a dictatorship? He is perhaps more known for his namesake Incompleteness Theorems.

A. Albert Einstein **B. Kurt Godel** **C. Hans Hahn** **D. Adele Nimbursky** **E. NOTA**

13. In publishing *A Mathematical Theory of Communication* in 1948, what mathematician founded the subject of information theory? He later worked on ideas in artificial intelligence with projects such as a maze-solving electronic mouse and a chess playing program.

A. John von Neumann **B. Alan Turing** **C. Edsger Dijkstra** **D. Claude Shannon** **E. NOTA**

14. Also known as “The Father of Modern Differential Geometry”, what Chinese-American mathematician later focused his career on bridging the gap between the East and West? In 2010, the International Mathematical Union established his namesake Medal in his honor.

A. Hua Fields **B. Shing-Tung Yau** **C. Shiing-Shen Chern** **D. Yitang Zhang** **E. NOTA**

15. What Hungarian mathematician, known for his frequent collaboration, helped develop the foundations of Ramsey theory? He referred to children as "epsilons" and the United States as "Samland."

A. Elbert Liszt **B. George Polya** **C. Paul Erdos** **D. Alger Hiss** **E. NOTA**

16. The Mu Alpha Theta National High School and Junior College Mathematics Club was founded in 1957 at what university?

A. University of Florida **B. Florida State University** **C. University of Oklahoma** **D. University of Virginia** **E. NOTA**

17. Depicted in the 2016 film *Hidden Figures*, what African-American mathematician worked on calculating trajectories, launch windows, and emergency return paths for Project Mercury space flights?

A. Vivian Mitchell **B. Katherine Johnson** **C. Dorothy Vaughan** **D. Mary Jackson** **E. NOTA**

18. After winning the 1949 and 1950 Putnam Competitions, what mathematician eventually won the Fields Medal in 1962 for his work in differential topology? He coined the term exotic sphere referring to any n -sphere with non-standard differential structure.

A. John Milnor **B. Peter Makienko** **C. Ralph Fox** **D. Israel Herstein** **E. NOTA**

19. What American group theorist was awarded a Fields Medal in 1970 and an Abel Prize in 2008 for his work in shaping the 20th and 21st centuries focus on modern group theory? With Walter Feit, he proved that every non-elementary simple group has an even number of elements.

A. Michael Aschbacher **B. Frank Nelson Cole** **C. John Thompson** **D. Peter Johnson** **E. NOTA**

20. With Yuri Matiyasevich, American mathematician Julia Robinson eventually resolved which Hilbert problem that sought to provide a general solution for any Diophantine equation?

A. First **B. Fourth** **C. Sixth** **D. Tenth** **E. NOTA**

21. The incorporation of statistical analysis in baseball is referred to by what term? The official definition of the term, “The search of objective knowledge about baseball” was coined by Bill James in 1980.

A. Basebatics B. SOKBmetrics C. Athleticstics D. Baseology E. NOTA

22. Historically held in locations such as West Point and Georgetown, the Mathematical Olympiad Program, the summer training camp that selects the members of the U.S. team for the International Mathematical Olympiad, is currently held at what location?

A. Harvard B. Carnegie Mellon C. MIT D. Disney World E. NOTA

23. In 1975, what professor at UC Berkeley published a letter to the *American Statistician* that posed the Monty Hall Problem? The problem was later popularized by Marilyn vos Savant in her column at *Parade* magazine.

A. Jason Rosenhouse B. Steve Selvin C. Cecil Adams D. Martin Gardner E. NOTA

24. Using a technique called forcing, what mathematician proved the independence in set theory of the axiom of choice and the continuum hypothesis?

A. Paul Cohen B. Ernst Zermelo C. Abraham Fraenkel D. Richard Dedekind E. NOTA

25. With Antoni Zygmund, Alberto Calderon founded the school of “hard analysis” at what midwest university, known for graduates like George Birkhoff and Saunders MacLane?

A. Ohio State B. Northwestern C. Purdue D. University of Chicago E. NOTA

26. Initially proposed by Francis Guthrie, what theorem was eventually proved in 1976 with the use of a computer by Kenneth Appel and Wolfgang Haken?

A. Fermat's Last **B. Nelson's** **C. Four-Color** **D. Catalan's** **E. NOTA**

27. In 1998, University of Michigan professor Thomas Hales solved the sphere packing conjecture put forth by what ancient astronomer in 1611?

A. Johannes Kepler **B. Nicolaus Copernicus** **C. Galileo Galilei** **D. Isaac Newton** **E. NOTA**

28. What author of *The Art of Computer Programming* and inventor of up-arrow notation is known as the "Father of the Analysis of Algorithms" for his work in computer science?

A. James Gosling **B. Dennis Ritchie** **C. Larry Page** **D. Donald Knuth** **E. NOTA**

29. What "mathemagician" is known for creations such as his namesake "number" and advancements in discrete mathematics? His accomplishments even reached outside of math, being elected president of the International Jugglers' Association in 1972.

A. Ronald Graham **B. Cedric Villani** **C. Andrew Wiles** **D. Edward Witten** **E. NOTA**

30. Known for his extensive work on game theory, what mathematician went on to win a Nobel in Economics for his development of a namesake equilibrium in non-cooperative games?

A. John Keynes **B. John Nash** **C. Milton Friedman** **D. Paul Krugman** **E. NOTA**