

"NOTA" means **none of the above**.

1. His greatest single publication was *Disquisitiones Arithmeticae*, a work of fundamental importance in the theory of numbers.

- A. Joseph Fourier B. Simeon Poisson C. Carl F. Gauss D. Augustin Cauchy E. NOTA

2. He asserted: "Mathematics is the queen of the sciences and the theory of numbers is the queen of mathematics" He became known as the Prince of Mathematicians.

- A. Henri Poincare B. Carl F. Gauss C. Emmanuel Kant D. Nicolas Lobachevsky E. NOTA

3. In 1807, while presenting a paper before the French Academy of Sciences on the flow of heat in metallic rods, plates, and solid bodies, he developed the trigonometric series that now carries his name.

- A. Simeon Poisson B. Gaspard Monge C. Adrien Legendre D. Joseph Fourier

4. This French mathematician considered many topics among which are electricity and magnetism, physical astronomy, definite integrals, series, and the theory of elasticity. Mathematics students today will encounter his name attached to, among others, a constant in electricity, a ratio in elasticity and a law of probability.

- A. Simeon Poisson B. Joseph Fourier C. Niels Abel D. Augustin Cauchy E. NOTA

5. The intermediate-value theorem states that if $f(x)$ is a real-valued continuous function in an open interval R and takes on the values α and β at a and b in R , then f takes on any value γ lying between α and β at, at least, one point c in R between a and b . It is often referred to as

- A. Poisson's Theorem B. Cauchy's Theorem C. The theorem of Galois D. Bolzano's Theorem E. NOTA

6. In an 1812 paper he gave the first proof of the theorem that if A and B are square matrices, then $|A \cdot B| = |A| \cdot |B|$

- A. Evariste Galois B. Bernhard Bolzano C. Niels Abel D. Simeon Poisson E. NOTA

7. Born in Postdam in 1804 and educated at the University of Berlin, he was both an outstanding researcher and teacher of mathematics. His most celebrated accomplishments are those concerning elliptic functions.

- A. LeJeune Dirichlet B. Carl Jacobi C. Johan Lambert D. Nicolai Lobachevsky E. NOTA

8. All of the following mathematicians did research in what is now called non-Euclidean geometry, except

- A. Evariste Galois B. Janos Bolyai C. Nicolai Lobachevsky D. Friedich Riemann E. NOTA

9. This mathematician published in 1830 his treatise on Algebra in which he made a distinction between "arithmetic algebra" and "symbolic algebra". His work paved the way for the modern concept of algebra.

- A. Duncan Gregory B. Janos Bolyai C. William Hamilton D. George Peacock E. NOTA

10. His work led him to invent an algebra where the commutative law of multiplication does not hold, where quaternions and quaternionic units are governed by the rule: $i^2 = j^2 = k^2 = ijk = -1$.

A. Augustus De Morgan B. William Rowan Hamilton

C. Duncan Gregory D. Hermann Hankel E. NOTA

11. While he made pioneering contributions to analytic geometry, theory of determinants, theory of curves and transformation theory, his most important work was his creation and development of invariant theory.

- A. Augustus DeMorgan B. James Sylvester C. Arthur Cayley D. William Rowan Hamilton E. NOTA

12. The second half of the nineteenth century saw the increase of high quality mathematical journals which were official organs of mathematical societies. The earliest of these societies created in 1865 was

- A. Societe Mathematique de France B. Circolo Matematico de Palermo C. Deutsche Mathematiker-Vereinigung
- D. London Mathematical Society E. NOTA

13. Born in Metz in 1788, this mathematician used the principle of duality and the principle of continuity in the development of projective geometry.

- A. Jean Poncelet B. James Sylvester C. Evariste Galois D. Sophie Germain E. NOTA

14. During his tenure as department head at Gottingen University, that institution became a mecca for mathematics students from all over the world. Numerous top-flight mathematicians served also in its faculty.

- A. Oswald Veblen B. Julius Plücker C. Elie Cartan D. Felix Klein E. NOTA

15. Born in Ostenfelde in 1815, he did not finally devote his full-time energies to research in mathematics until he was past forty. He became one of the best teachers of advanced mathematics. He discovered uniform convergence and started the arithmetization of analysis.

- A. Georg Cantor B. Karl Weierstrass C. Richard Dedekind D. Leopold Kronecker E. NOTA

16. The following are all members of the Mathematical Pleiades or the Seven Daughters of Mathesis except

- A. Sonya Kovalesky B. Sophie Germain C. Emmy Noether D. Alice Ambrose E. NOTA

17. His work in England during World War II led to breaking the Enigma Code.

- A. Andrew Wiles B. Alan Turing C. Charles Babbage D. Richard Dedekind E. NOTA

18. It was originally considered a branch of geometry and its original name was *analysis situs*. Today it may be roughly defined as the mathematical study of continuity. The term by which it is known today was introduced by J.B. Listing in 1847.

- A. Complex Analysis B. Thermodynamics C. Riemann Geometry
D. Vector Analysis E. NOTA

19. All of the following mathematicians excelled in the field of symbolic logic, except
- A. David Hilbert B. George Boole C. Ernst Schröder D. Augustus DeMorgan E. NOTA
20. He announced in 1993 that he had proven Fermat's "Last Theorem".
- A. Kenneth Ribet B. Barry Mazur C. John Nash D. Andrew Wiles E. NOTA
21. In 1976 Kenneth Appel and Wolfgang Haken established this conjecture by an intricate computer-based analysis. The proof contains several hundred pages of complex details and over a thousand hours of computer calculation. This was
- A. Fermat's Last Theorem B. The four-color conjecture of topology
C. Cardano's conjecture D. Brouwer's Theorem E. NOTA
22. Once a student of Gaston Julia, he discovered in 1980 the set that carries his name by applying the process $z \rightarrow z^2 + k$ ad infinitum.
- A. Benoit Mandelbrot B. Georg Cantor C. Maurice Frechet D. Felix Hausdorff E. NOTA
23. The following are all early versions of computers, except
- A. ASCC B. ENIAC C. MANIAC D. MALFATTI E. NOTA
24. Born in Italy in 1858 this mathematician and logician developed new notation for mathematical logic and proposed five simple axioms for number theory. He is also remembered for his 1890 discovery of the space-filling curve now bearing his name.
- A. Carl Jacobi B. Eugenio Beltrani C. Lorenzo Mascheroni D. G. Ricci-Curbastro E. NOTA
25. American mathematician born in 1916 who with Warren Weaver wrote the Mathematical Theory of Communication in 1948, thus founding the modern discipline of information theory.
- A. Claude Shannon B. Georg Cantor C. William Shanks D. Jake Steiner E. NOTA

26. American mathematician born in 1894 who worked in the field of mathematical logic, stochastic processes and Fourier transforms. With the publication in 1948 of his *Cybernetics or Control and Communication in the Animal and the Machine* he became internationally known and founded the modern discipline of cybernetics.

- A. Hermann Weyl B. John Venn C. Edmond Whittaker D. Norbert Wiener E. NOTA

27. German mathematician who with the publication in 1908 of *Investigations on the Foundations of Set Theory* founded the modern discipline known as axiomatic set theory.

- A. Herman Grassman B. Ernst Zermelo C. Leopold Kronecker D. Karl Weierstrass E. NOTA

28. American mathematician who studied under Einstein, von Neuman and a host of other greats and whose contributions to game theory would ultimately revolutionize the field of economics. After many years of devastating mental illness he had a miraculous recovery and was awarded the Nobel Prize for Economics in 1994.

- A. John Milnor B. Kenneth Arrow C. John Nash D. Paul Samuelson E. NOTA

29. Ferdinand von Lindemann proved the transcendence of π in the year

- A. 1802 B. 1882 C. 1872 D. 1892 E. NOTA

30. Influential scientist who revolutionized physics. His theories needed mathematical techniques and insights not previously deployed. In his 1905 theory he substituted the Lorentz transformation for the classical Galilean transformation while in his general theory he incorporated a curvature tensor based ultimately on the geometry of Riemann and the tensor calculus of Ricci-Curbastro.

- A. Karl Pierson B. William Kelvin C. Enrico Fermi D. Albert Einstein E. NOTA