1. Consisting of 29 distinct notches in a baboon's fibula, what oldest known mathematical artifact was discovered in the mountains of Swaziland?

A. Lebombo Bone B. Ishango Bone C. Essedat Bone D. Rhind Bone E. NOTA

2. What is the pattern of writing used by the Sumerians to write works such as the Epic of Gilgamesh and tablets such as Plimpton 322?

A. Hieroglyphics B. Cuneiform C. Demotic D. Mesoscript E. NOTA

3. Located out of Miletus, what member of the Seven Sages described a triangle inscribed in a semi-circle as always being right-angled?

A. Aristotle B. Solon C. Thales D. Anaximander E. NOTA

4. Which of the following is not one of Zeno's paradoxes?

A. The Dichotomy B. The Achilles C. The Arrow D. The Stadium E. NOTA

5. Scottish mathematician John Playfair provided his own formulation of the parallel postulate, first put forth by what mathematician from Alexandria?

A. Archimedes B. Euclid C. Proclus D. Ptolemy E. NOTA

6. What "Great Geometer" of Perga is known for his work *Conics* that introduced the terms ellipse, hyperbola, and parabola?

A. Callimachus B. Eudemus C. Pappus D. Apollonius E. NOTA

7. What 5th century Chinese mathematician used 355/113 as his approximation of pi?

A. Zu Chongzhi B. Zhu Shijie C. Jia Xian D. Yang Hui E. NOTA

8. What patron of Ulugh-beg is known for his decimal approximations and contributions to trigonometry? In France, The Law of Cosines is commonly cited as his theorem.

A. al-Kashi B. al-Tusi C. al-Khwarizmi D. Diophantus E. NOT A

9. Known for her work on differential calculus, what Italian mathematician worked on her "la verseria" cubic function, but due to a translation error, is now known as her "l'aversiera" or "witch?"

A. Teresa Giuseppe B. Fortunata Brivio C. Maria Agnesi D. Sophie Germain E. NOTA

10. A close friend of Descartes and Fermat, what Minimite friar has a namesake pseudorandom number generator known as his "twister" and names primes of the form $2^p - 1$where p is prime?

A. Marin Mersenne B. Blaise Pascal C. Gregor Mendel D. Pierre Wilson E. NOTA

11. What 16th century Italian mathematician is known to be the first person to lay down the arithmetic rules regarding complex numbers?

A. Gerolamo Cardano B. Lodovico Ferrari C. Rafael Bombelli D. Francois Viete E. NOTA

12. In his 1557 textbook *Whetstone of Witte,* what English mathematician introduced the equals sign?

A. John Napier B. Isaac Newton C. Robert Recorde D. Isaac Barrow E. NOTA

13. What namesake of a theorem connecting complex numbers to trigonometry is known for publishing the first textbook in probability theory, *The Doctrine of Chances*?

A. Guillaume L'Hopital B. Jacob Bernoulli C. Christian Kramp D. Abraham DeMoivre E. NOTA

14. In the first edition of the *Principia*, Isaac Newton admitted what mathematician was in possession of a similar "method of tangents?" Newton later deleted this reference in subsequent editions.

A. Gottfried Leibniz B. Pierre de Fermat C. Rene Descartes D. Thomas Young E. NOTA

15. What French mathematician's investigations into conics led to him laying the foundations of projective geometry, eventually culminating in him publishing the *Brouillon project*?

A. George Mohr B. Gaspard Monge C. Pietro Mengoli D. Girard Desargues E. NOTA

16. What is the name of the conjecture, formulated through a correspondence with Leonhard Euler, that states every positive even integer greater than 4 can be expressed as the sum of two primes?

A. Collatz Conjecture B. Butterfly Conjecture C. Beal's Conjecture D. Goldbach's Conjecture E. NOTA

17. The Bridges of Konigsberg problem in graph theory led to Euler inventing his namesake formula, F + V = E + 2. How many bridges were in the original problem?

A. 8 B. 9 C. 10 D. 11 E. NOTA

18. Euler is also known as the namesake of Euler's constant. Although its first references can be traced to John Napier, what member of the Bernoulli family is credited with its discovery?

A. Jacob B. Daniel C. Johann D. Nicolaus E. NOTA

19. Unfortunately dying in a duel at the young age of 20, what French mathematician laid the foundations for his namesake theory and developed the early stages of group theory?

A. Lagrange B. Garcon C. Laplace D. Galois E. NOTA

20. What Crimean War nurse developed a graph similar to a pie chart, known as the Polar Area Diagram, which she called the "coxcombs?"

A. Clara Barton B. Dorothea Dix C. Florence Nightingale D. Teresa Bojaxhiu E. NOTA

21. With G. H. Hardy, what mathematician published a joint paper researching the asymptotic values of the partition function? He famously noted 1729 was "not a boring number at all."

A. Srinivase Ramanujan B. John Littlewood C. Kurt Godel D. Sydney Chapman E. NOTA

22. While working at a Guinness brewery in Dublin, what statistician, under the pseudonym "Student," invented the t-test to handle small samples for quality control in brewing?

A. William Gosset B. Karl Pearson C. Francis Galton D. Ronald Fisher E. NOTA

23. Also known as "The Imitation Game," what mathematician's namesake "test" is an assessment of a machine's ability to exhibit intelligent behavior? He is also the namesake of the most prestigious award in computer science and appears on the 50 pound note.

A. John von Neumann B. Eric Schmidt C. Alan Turing D. Stephen Hawking E. NOTA

24. Ron Rivest, Adi Shamir, and Leonard Adleman formulated the RSA encryption algorithm while at what university? Its famous alumni include Richard Feynman, Kofi Annan, and Buzz Aldrin.

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

25. In 1965, what Intel scientist predicted the exponential growth of transistors on microchips would lead to a dramatic increase in efficiency of computing?

A. Claude Shannon B. Robert Noyce C. Gordon Moore D. Arthur Rock E. NOTA

26. Remembered for his eccentric lifestyle and prolific mathematical work, what Hungarian mathematician famously did not quip "A mathematician is a device for turning coffee into theorems." (It was actually his colleague Alfred Renyi)

A. Paul Erdos B. Ron Graham C. Pal Turan D. Peter Lax E. NOTA

27. Also known as $3n + 1$ conjecture, what unsolved problem goes by such names as the Ulam conjecture, Kakutani's problem, Thwaites conjecture, Hasse's algorithm, or the Syracuse problem?

A. Goldbach's Conjecture B. Beal's Conjecture C. Butterfly Conjecture D. Collatz Conjecture E. NOTA

28. In October of 2018, Sir Michael Atiyah unsuccessfully claimed to have solved what famous problem? It continues to elude mathematicians today, being the only problem in Hilbert's 23 Problems and the Millenium Prize Problems.

A. Riemann Hypothesis B. Hodge Conjecture C. Fermat's Last Theorem D. P v NP E. NOTA

29. What city's namesake mathematical society held honorary members including Andrey Markov and Leonid Kantorovich? This city also names a paradox in probability theory formulated by Nicolas Bernoulli.

A. Saint Petersburg B. Moscow C. Zurich D. Paris E. NOTA

30. Arkansan mathematician John Stallings extensively worked on geometric topology, eventually publishing *How not to prove the Poincaré conjecture* in 1965. Poincare's conjecture was eventually solved by what mathematician?

A. Andrew Wiles B. Stephen Smale C. Grigori Perelman D. Paul Cohen E. NOTA