History of Mathematics: 17th and 18th Century Mathematicians
2007 National Mu Alpha Theta Convention
NOTA means "None of the Above"

1. This famous mathematician was banned from his family's home after winning the Paris Academy Award jointly with his father. It is rumored that his father stole one of his great discoveries, changed the name and date on it, and claimed it as his own. One of his discoveries was on the conservation of energy.
   A. Jacob Bernoulli B. Johann Bernoulli II
   C. Daniel Bernoulli D. Nicolaus Bernoulli E. NOTA

2. This man's father was a leather merchant. He married his mother's cousin and had 3 sons and 2 daughters. He had a wide knowledge of European literature and languages. He worked as a king's councilor and was expected to hold himself aloof from townsmen to abstain from unnecessary social activities so not to be corrupted by bribery. He was the first to apply analytic geometry to three dimensions.
   A. Pierre Fermat B. Blaise Pascal
   C. John Wallis D. Rene Descartes E. NOTA

3. This mathematician is commonly referred to as, "The Greatest Might Have Been in History". His father banned mathematics in their household because he thought his son might overstrain. His sister bragged to other mathematicians that he discovered the first 32 propositions from Geometry as Euclid, and even in the same order! He suffered from Acute Dyspepsia and Insomnia until he died at age 39.
   A. James Gregory B. Blaise Pascal
   C. John Wallis D. Sir Christopher Wren E. NOTA

4. This lucky guy was a senator to Napoleon, Count of the Empire, and Grand Officer of the Legion of Honor. He applied calculus to probability. He wrote to Euler about calculus of variations which helped him solve a problem that was bothering him. Euler later thanked this mathematician in his publication.
   A. Isaac Barrow B. Christian Huygens
   C. Blaise Pascal D. Joseph Lagrange E. NOTA

5. Who am I? Sometimes known by my Germanic name *Kauffmann*, I was a 17th-century mathematician who lived most of my life in England. I am most well-known for designing the decorative fountains at the Palace of Versailles and for my treatise *Logarithmo-technica* on logarithms, published in 1668. In this work, I was the first to use the term "natural log".
   A. Isaac Newton B. Nicholas Mercator
   C. John Wallis D. Ole Roemer E. NOTA

6. Which of these was not a president of the Royal Society in the 17th or 18th centuries?
   A. Isaac Newton B. Joseph Banks
   C. Sir Christopher Wren D. Charles Montagu E. NOTA

7. Gabriel's Horn is an infinitely long solid whose surface area is infinite, but its volume is finite. The discovery of this incredible paradox sparked a historical controversy about the nature of infinity. Which mathematician, who was also a pioneer of infinite series, discovered Gabriel's Horn?

   A. Gregoire de Saint-Vincent B. Jakob Bernoulli
   C. Evangelista Torricelli D. Jean Baptiste Fourier E. NOTA

8. This handsome fellow was the first author of a Calculus textbook. Many of his ideas came from his teacher, Johann Bernoulli. Who is it?

   A. Guillaume L'Hospital B. Isaac Newton
   C. Gottfried Leibnitz D. Abraham de Moivre E. NOTA

9. Which of the following 17th and 18th Century Mathematicians were not born in France?
   A. Johann Lambert B. Joseph-Louis Lagrange
   C. Adrian Legendre D. Pierre Laplace E. NOTA

10. "It is not enough to have a good mind. The main thing is to use it well." The mathematician credited with that quotation from *Discours de la Méthode* definitely used his mind well. He developed many basic principles in mathematics before he died of lung disease in 1650. This Frenchman is so famous, he has a street in Paris named after him.

    A. Guillaume L'Hospital B. Jean-le-Rond D'Alembert
    C. Rene Descartes D. Pierre Laplace E. NOTA

11. You think studying for this History of Math test was rigorous? This mathematician could recite the entire *Aeneid* word-for-word. He once did a calculation to fifty decimal places in his head. This geometer solved in 3 days a problem proposed by the Academy, for whose solution several eminent mathematicians had demanded the space of some months. Not only did he do all this, including publishing over 800 papers, he had 13 children who often played by his feet. Who was this legendary mathematician?

    A. Isaac Newton B. Pierre Fermat
    C. Leonhard Euler D. John Bernoulli E. NOTA

12. Many mathematicians have been involved in politics. But this mathematician's family was so active in Dutch politics, that he eventually became the grand pensionary (similar to a prime minister) of Holland. When France invaded Holland in 1672, violent demonstrations broke out in support of William III returning to power. While visiting his brother in prison, a mob gathered outside, fought its way into the prison, and hacked the two brothers to pieces, hanging their scattered limbs on lamp posts. This mathematician was one of the greatest of Dutch statesmen and patriots, a patron of the sciences, and a close friend of Spinoza.

    A. Francois de Sluze B. Ehrenfried von Tchirnhausen
    C. Antoine de Laloubere D. Jan de Witt E. NOTA

13. Your algebra teachers would be shocked and appalled if their students could not recite the fundamental theorem of algebra. But who exactly was the first person to give the first explicit statement of the fundamental theorem of algebra? In *A New Discovery in Algebra*, this mathematician also introduced the concept of a fractional exponent.

A. Albert Girard B. Isaac Barrow
C. Gabriel Cramer D. Abraham de Moivre E. NOTA

14. The modern theory of probability is usually considered to begin with the correspondence in 1654 of these two mathematicians:

A. Fermat and Descartes B. Fermat and Pascal
C. Huygens and Pascal D. Gregory and Huygens E. NOTA

15. One mathematician from the 17^{th} century used probability theory to form an argument to support the belief in God. Which religious mathematician used this argument?

> *If God is not, it does not matter much. If God is, however, wagering that there is no God will bring damnation while wagering that God exists will bring salvation. Because the latter outcome is infinitely more desirable than the former, the outcome of the decision problem is clear, even if one believes that the probability of God's existence is small: The "reasonable" person will act as if God exists.* -- Taken from A History of Mathematics, Katz.

A. Rene Descartes B. Blaise Pascal
C. Marin Mersenne D. Abraham de Moivre E. NOTA

16. Prime numbers of the form $2^p - 1$ where p is a prime number, are known to be first discussed by _____, and named after _____.

A. Euclid, Mersenne B. Fermat, Pascal
C. Mersenne, Mersenne D. Mersenne, Pascal E. NOTA

17. This French engineer's most original contributions to mathematics were in the field of projective geometry. His work was not well received however partly because he invented and used so many new technical terms that few could follow. Another reason is that mathematicians were just beginning to appreciate Descartes' analytical geometry, and were not ready for a synthetic version. The only contemporary mathematician to appreciate his work was Pascal, who acknowledged him in *Essay on Conics* in 1640. Who was this engineer that was centuries ahead of his time?

A. Bernard de Bessy B. Gregoire de Saint-Vincent
C. Girard Desargues D. John Pell E. NOTA

18. Which man was first to use the modern day notation for an integral? $\int$

A. Isaac Newton B. Gottfried Leibniz
C. Isaac Barrow D. Joseph Saurin E. NOTA

19. This teacher was the most distinguished of a group of lecturers who taught in the London coffee houses. The coffee houses were sometimes called the Penny Universities because of the cheap education they provided. Different coffee houses catered to specific interests such as art, business, law and mathematics. De Moivre used Slaughter's Coffee House on St Martin's Lane as a base for his teachings. Who is this educator that is best remembered for his work on interpolation and numerical methods of integration?

A. Isaac Newton B. Thomas Simpson
C. Isaac Barrow D. Brook Taylor E. NOTA

20. Order these famous "L" mathematicians in the correct sequence by their birthdates: Laplace, Leibniz, Legendre, and Lambert.

A. Leibniz, Laplace, Legendre, Lambert B. Legendre, Laplace, Leibniz, Lambert
C. Laplace, Lambert, Leibniz, Legendre D. Leibniz, Lambert, Laplace, Legendre
E. NOTA

21. Raised by his uncle who was a minister in Scotland, this mathematician achieved great strides in mathematics by publishing *Treatise of Fluxions,* the first systematic exposition of Newton's methods written as a reply to Berkeley's attack on the calculus for its lack of rigorous foundations. A *series* of events in his life, including a two year abandonment of his students, eventually brought him to being a secretary for the Royal Society of Edinburgh.

A. Brook Taylor B. Johann Bernoulli
C. Colin Maclaurin D. James Gregory E. NOTA

22. Forget about Pirates of the Caribbean! This English mathematician saved his own ship from capture by pirates while sailing through the east. Despite his smoking problem, he had a reputation of being strong and courageous. Being one of Isaac Newton's mentors, it is not surprising that he was the first to recognize that integration and differentiation are inverse operations.

A. Fig Newton B. Isaac Barrow
C. Rene Descartes D. John Wallis E. NOTA

23. Using this mathematician's coordinate plane system, we can describe geometric shapes (such as curves) as algebraic functions. This system brought together algebra and Euclidean geometry. His work was influential in the development of analytic geometry, calculus, and cartography.

A. Isaac Newton B. Girard Desargues
C. Rene Descartes D. Blaise Pascal E. NOTA

24. Which two men are widely considered to have discovered Calculus simultaneously?

A. Fermat and Descartes B. Fermat and Newton
C. Newton and Descartes D. Newton and Leibniz E. NOTA

25. This originator of the word “cell” in biology is one of the most neglected natural philosophers in history. He discovered the iris diaphragm in cameras, the universal joint used in motor vehicles, and the balance wheel in a watch. He was Surveyor of the City of London after the Great Fire of 1666, architect, experimenter, and worked in astronomy - yet is known mostly for his law stating that stress is proportional to the strain. Who is this seventeenth century mathematician?

A. Robert Hooke B. John Collins
C. Brook Taylor D. John Pell E. NOTA

26. Which famous mathematician had all of these things later named after him?

- Probe: The lander for the Saturnian moon Titan, part of a mission to Saturn
- Asteroid 2801
- Crater on Mars
- Mountain on the Moon
- A microscope image processing software package
- Achromatic eyepiece design named about him
- Type of wavelets, the fundamental mathematical basis for scalar diffraction theory

A. James Gregory B. Christiaan Huygens
C. Galileo Galilei D. Johann Kepler E. NOTA

27. “Have your pi and *e* it too!” is a famous math nerd t-shirt. Which mathematician do we give credit to for the notation for a function, pi, *e*, *i*, sigma, and many others?

A. Isaac Newton B. Pierre Fermat
C. Leonhard Euler D. Blaise Pascal E. NOTA

28. “Justice and power must be brought together, so that whatever is just may be powerful, and whatever is powerful may be just.” Who is this quote attributed to? (see picture)

A. Isaac Newton B. Pierre Fermat
C. Leonhard Euler D. Blaise Pascal E. NOTA

29. You have to be pretty darn full of yourself to argue with Isaac *“If I have been able to see further, it was only because I stood on the shoulders of giants”* Newton over his invention of calculus. This Irish bishop and philosopher’s best known contribution to mathematics is his attack on the logical foundation of the calculus as developed by Newton.

A. George Berkeley B. Bishop Moore
C. Thomas Young D. John Kelley E. NOTA

30. Who was the first mathematician to use the word “integral” to represent the area bounded by a curve?

A. Isaac Newton B. Gottfried Leibniz
C. Isaac Barrow D. Brook Taylor E. NOTA