JOHN FORBES NASH, JR.

By: Caroline

BIOGRAPHICAL INFORMATION

Born on June 13, 1928 in Bluefield, West Virginia

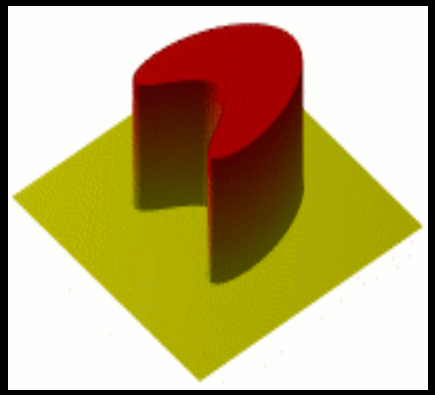
Now 84 and lives in the United States (does not specify further)

Married Alicia Lopez-Harrison de Lardé in 1957

Had two children, John Charles Martin Nash and John David Stier

MAJOR MATHEMATICAL CONTRIBUTIONS

Nash Equilibrium: In game theory, each person playing the (uncooperative) game makes the best decision he/she can using the knowledge of the other players' strategies. No one player will benefit from changing their strategy unilaterally. If each player has picked his/her strategy and no player can benefit from changing their strategy while the others keep theirs unchanged then the game is in Nash equilibrium.



Algebraic Geometry

Nash Embedding Theorems

Partial Differential Equations

INTERESTING LIFE EVENTS

Went to Carnegie Institute of Technology and began his PhD at Princeton University in 1948

Won Nobel Prize for pioneering work in game theory in 1994 at 66-years-old

Invented the game of Hex, produced by the Parker Brothers

Did electrical and chemistry experiments while still in college

Fled the country in 1995 to become a refugee in Europe

OTHER

His work is used in market economics, computing, evolutionary biology, artificial intelligence, accounting, politics, and military theory.

Worked in game theory, differential geometry, and partial differential equations

Was schizophrenic, which caused him much distress over the years of 1955-1980, in which he did no work on mathematics and wandered the halls of Princeton like a ghost.

BIBLIOGRAPHY

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http://www.uh.edu/engines/epi983.htm

http://www.nobelprize.org/nobel_prizes/economics/laureates/1994/nash-autobio.html


G.W. Leibniz
By: Colin

About Him

- Born in 1646
- Died in 1716(age 70)
- German Mathematician
- Newton's Rival

Things he did in Math

- Invented the Pinwheel Calculator
- Worked on adding automatic * and / to Pascal's calculator
- Invented the Leibniz Wheel which was used in the Arithmometer(the 1st mass produced calculator)
- Continued Cavalieri's (1598-1647) Geometry of Indivisibles to study: y=nx(n(1)

More Things He Did In Math

- Invented Calculus(controversy with Newton)
- Found: AB=1,AC=1/2,AD=1/3,AE=1/5, BC=1/2,CD=1/6,DE=1/12 and EF=1/20(proportional terms)
- Also used Hyugen's "Reciprocal Triangle Series):: 1+1/3+1/6+1/10+....=2.
- the differential of x3 is 3x2dx
- Leibniz used second derivatives, written ddx, for the determination of "oscillating circles", and was able to use his calculus with logarithms

Death

Leibniz died in Hanover in 1716: at the time, he was so out of favor that neither George I (who happened to be near Hanover at that time) nor any fellow courtier other than his personal secretary attended the funeral. Even though Leibniz was a life member of the Royal Society and the Berlin Academy of Sciences, neither organization saw fit to honor his passing. His grave went unmarked for more than 50 years. Leibniz was eulogized by Fontenelle, before the Academie des Sciences in Paris, which had admitted him as a foreign member in 1700. The eulogy was composed at the behest of the Duchess of Orleans, a niece of the Electress Sophia.

Sources

http://en.wikipedia.org/wiki/Gottfried_Wilhelm_Leibniz
http://library.thinkquest.org/22584/temh3016.htm
http://www.math.rutgers.edu/courses/436/Honors02/leibniz.html

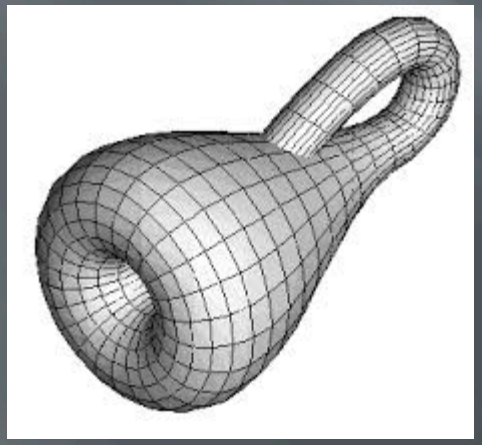
FELIX KLEIN
BY: DAVID

Background Information

Christian Felix Klein was a German mathematician, known for his work in group theory, complex analysis, non-Euclidean geometry, and on the connections between geometry and group theory. He was born in Düsseldorf, the capital city of the German state of North Rhine-Westphalia, on April 25, 1949 and died on June 22, 1925.

The Klein Bottle

The Klein Bottle is a non-orientable surface. Simpler, it is surface where notions of left and right can't be defined. The Klein Bottle is the four dimensional version of the Möbius Strip.



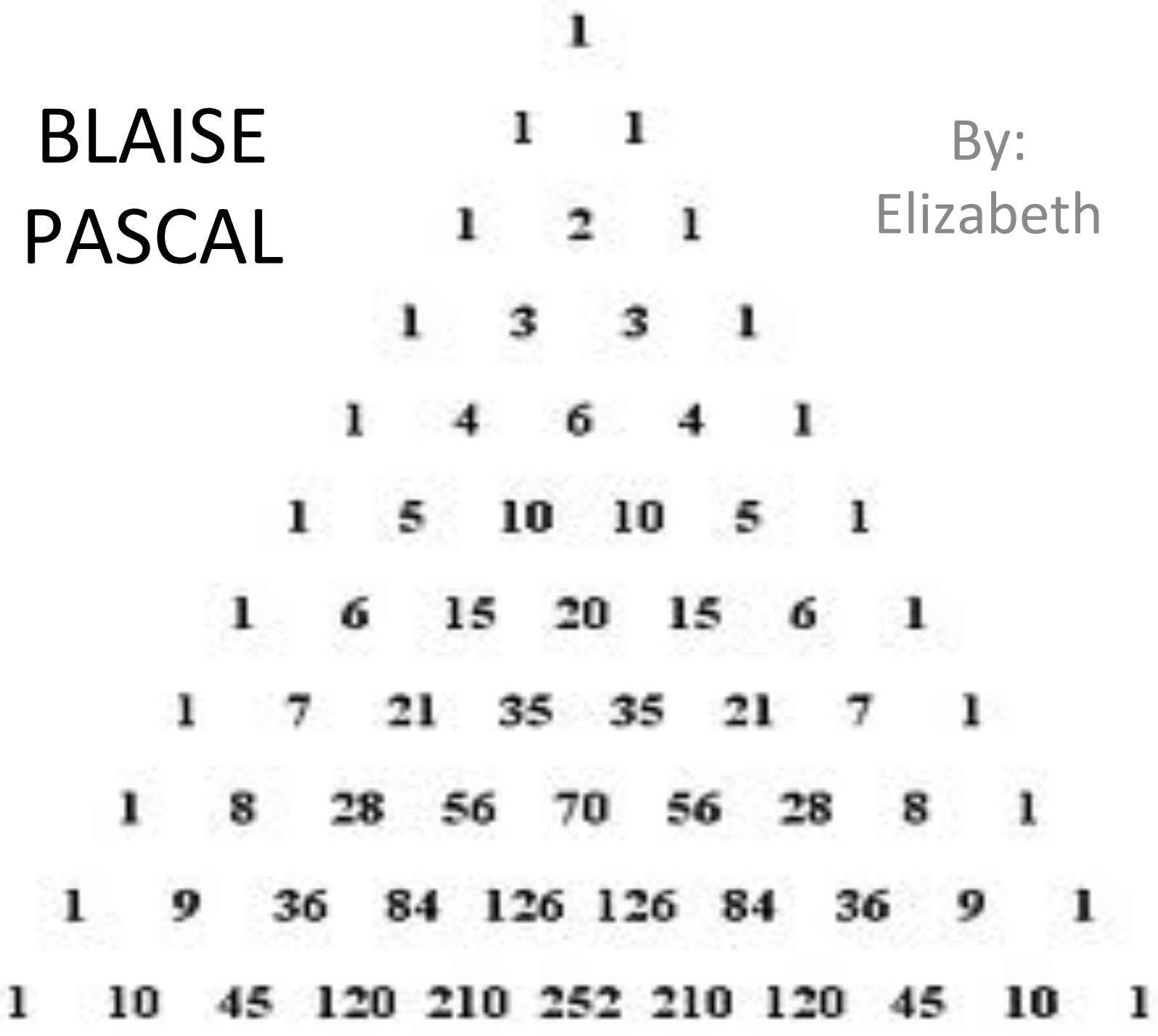
Awards

In 1893, the London Mathematical Society awarded Klein with its De Morgan Medal, which is a prize awarded for outstanding contributions to mathematics. In 1885, he was elected a member of the Royal Society, and was given its Copley Medal in 1912,. The Copley medal was also awarded to other famous mathematicians and scientists like Albert Einstein and Stephen Hawking.

Works Cited

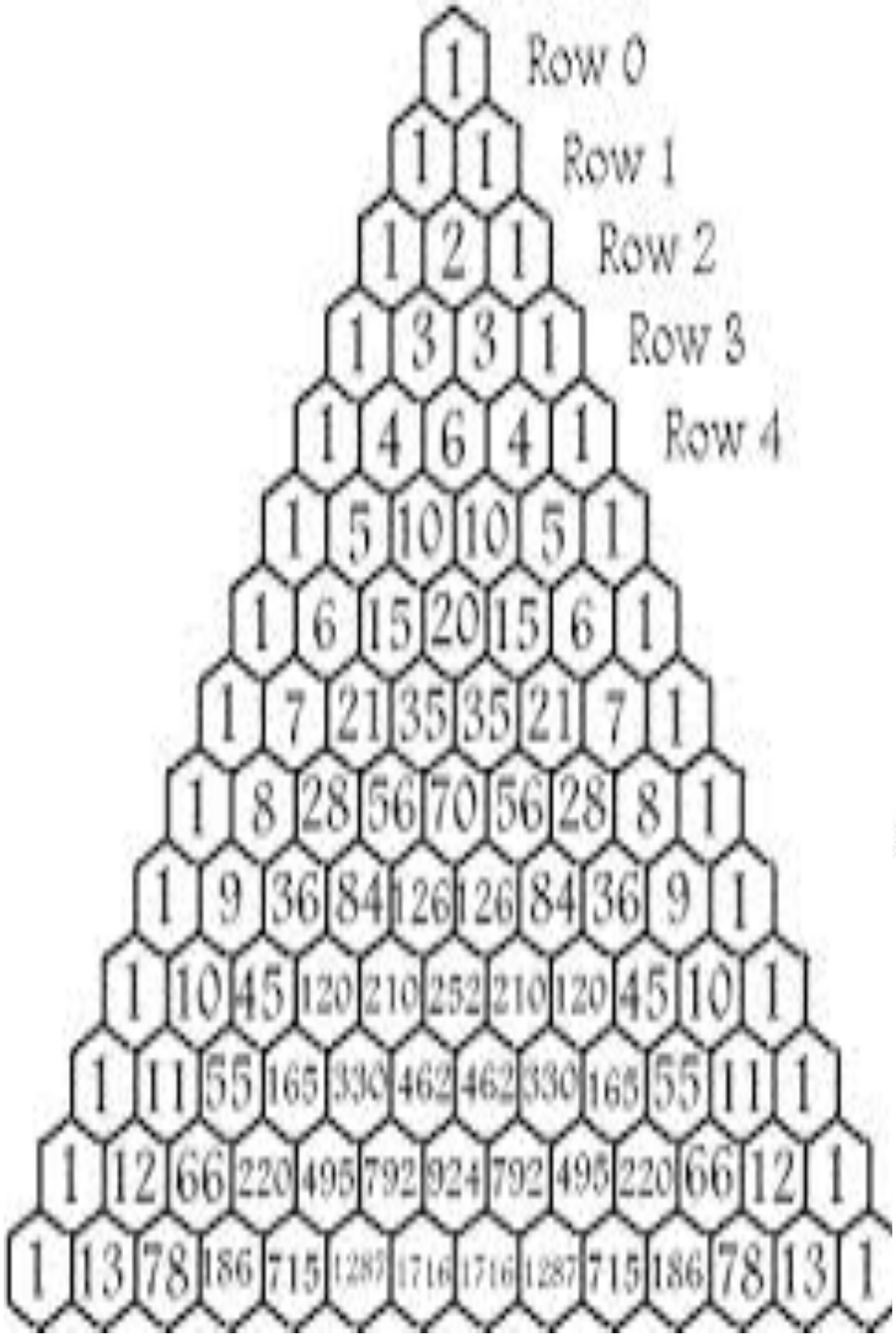
http://en.wikipedia.org/wiki/Felix_Klein

BLAISE PASCAL



By: Elizabeth

- ✓ Pascal was a famous mathematician who was raised in Clermont-Ferrand.
- ✓ 2 sisters.
- ✓ In 1631, 5 years after the death of his wife, Étienne Pascal took his kids, Blaise, Jacqueline, and the oldest, Gilberte, to Paris.
- ✓ Mr. Pascal deiceded to not marry again so that he could teach his kids without any distraction.



Blaise Pascal

by Shannon Yang

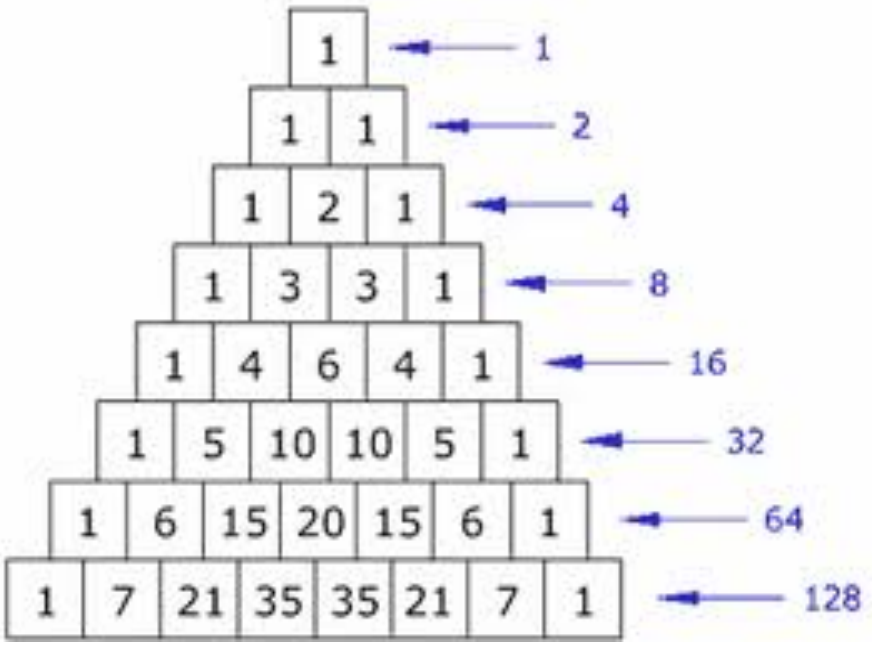
- At the age of 16, he built the first mathematical machine in which he made 20 of in the next 10 years. This device was called Pascal's Calculator, and later called Pascalines.

After his father died in 1651, Pascal abandoned his scientific work to study in the field of philosophy and theology.

The 2 most famous works that date here is:

- ✓ Lettres Provinciales
- ✓ Pensees

Pascal influenced math through his life. *Traité du triangle arithmétique* ("Treatise on the Arithmetical Triangle") or Pascal's Triangle. This triangle represents binomial coefficients.



This is the formula for finding Pascal's Triangle.

$$t_{mn} = \frac{(m+n)(m+n-1)\cdots(m+1)}{n(n-1)\cdots 1}.$$

It makes no sense to me.

In 1659, Pascal got very, very sick. He died in 1662. Only one year after the death of his sister.

Sources

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- http://www.maths.tcd.ie/pub/HistMath/People/Pascal/RouseBall/RB_Pascal.html
- http://www.google.com/search?q=pascals+triangle&bav=on.2,or.r_qf.&bvm=bv.47883778,d.dmg&biw=1280&bih=601&um=1&ie=UTF-8&hl=en&tbm=isch&source=og&sa=N&tab=wi&ei=g_G5Uba5BPSo4AOSy4DACA#facrc=_&imgrc=WvQR9RkvEV5CcM%3A%3BlYGA0ib43YzvJM%3Bhttp%253A%252F%252Fwww.math.umass.edu%252F~mconnors%252Ffractal%252Fgenerate%252Fpascal2.gif%3Bhttp%253A%252F%252Fwww.math.umass.edu%252F~mconnors%252Ffractal%252Fgenerate%252Fpascal.html%3B584%3B512

AUGUST DE MORGAN

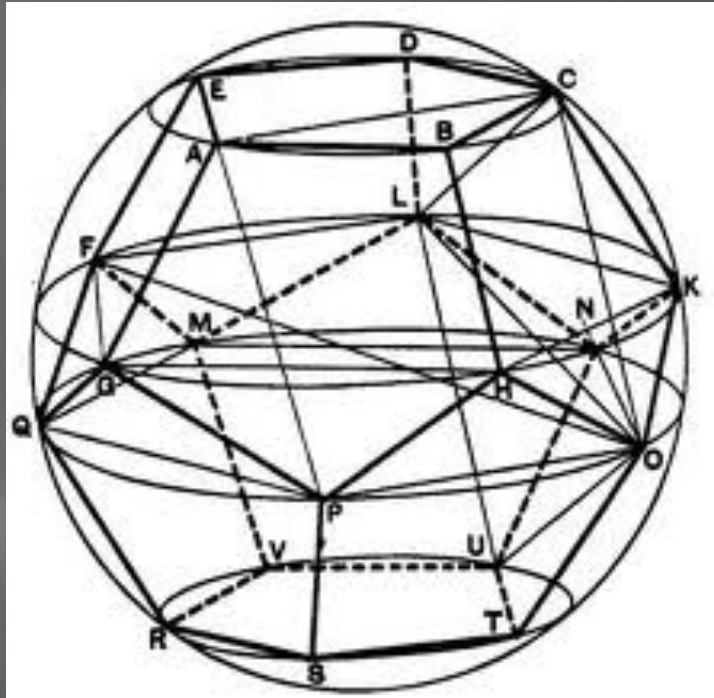
By Harper

Early Life

- He was born in Madurai, Madras Presidency India.
- His father worked for The East India Company Which traded with the Europeans.
- Was blind in one eye.
- At age 10 his father died so his mom moved him to the southwest of England. There he received an elementary education to no great ammount

Learning in his teen years

- His mathematical talent was discovered at age fourteen when a family friend found him drawing a complex Euclid figure with a ruler and compass.
- This family–friend then explained the of Euclid.



His contributions to math

- The law of signs
- + + = +, + − = −, − + = −, − − = +, × × = ×, × ÷ = ÷, ÷ × = ÷, ÷ ÷ = ×.
- Other contributions Commutative Law, Distributive Law, Index Laws
- Built on some of Aristotle's laws of math and logic.

Contributions cont.

- In that time the definition of a paradox was something not accepted by the general public.
- He proved some paradoxes and made them acceptable.

Distracted from math

- In his later life he became distracted by the concept of spiritualism and clairvoyance he had supernatural investigations in his home.
- He and his wife published a book on clairvoyancy

Sources

- www.Wikipedia.com
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LEONHARD EULER

By Maddy

LEONHARD EULER

- Born in Basel, Switzerland in 1707
- Died in St. Petersburg, Russia in 1783
- He was blind at about the age of 57 however he output the majority of his work at this time
- He married twice and had thirteen children but only five lived past childhood

WHO WAS HE?

- A Swiss mathematician and physicist
- He had amazing concentration skills ex: he could recite the entire *Aeneid* verbatim
- He published 886 papers and books which may be exceeded only by Paul Erdös

WHAT DID HE DO FOR MATH?

- Euler's identity : $e^{ip}+1=0$
- Euler's number "e" (irrational number like pi)
- Euler's number theory (relation of numbers with each other and in grouping and categorizing them)
- And many more

- He joined St. Petersburg Academy of Science in 1727
- In 1741 he went to Berlin because Fredrick the Great invited him however they did not get along very well

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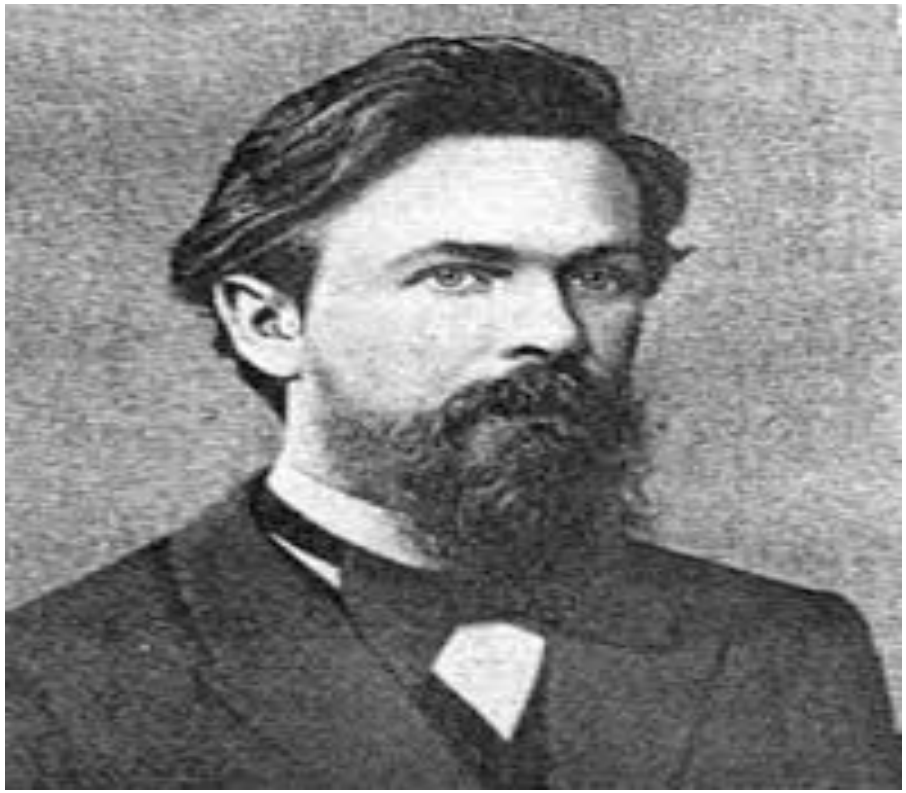


Adrei Andreyevich Markov

Max

Born June 14, 1856 in Ryazan, Russia

Was talented and had a high interest in math in school

Markov was a mathematician.

He was best known for his work with probability in stochastic processes.

Would later become a professor in St. Petersburg.

Died July 20, 1922 in St. Petersburg, Russia

Stochastic Processes

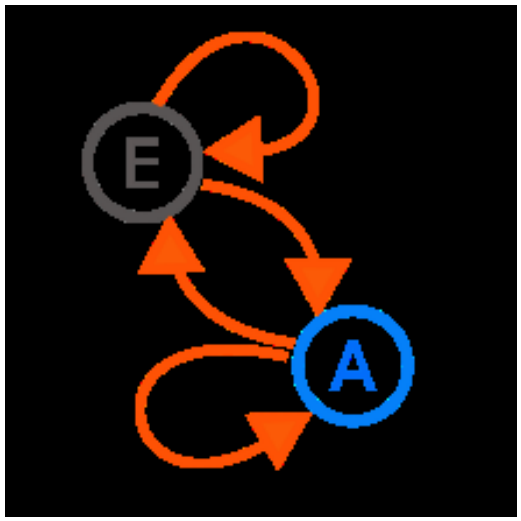
Stochastic Processes are a collection of random variables, which are often used to represent the evolution of one random variable.

Markov Property

The memory less property of the stochastic process that allows a number to evolve an infinite number of times and ways.

Markov Chains

A mathematical system that undergoes transitions from one state to another. The possible states are finite. Markov chains are the stochastic process and the Markov process on a finite space.



Sources

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Carl Gauss

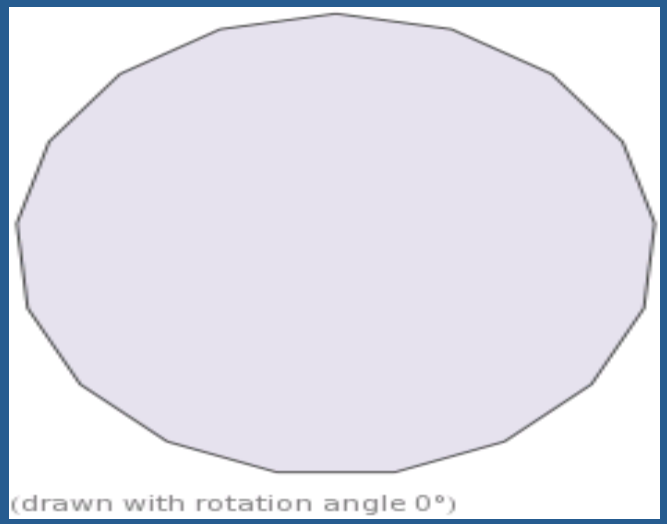
By : Rithik

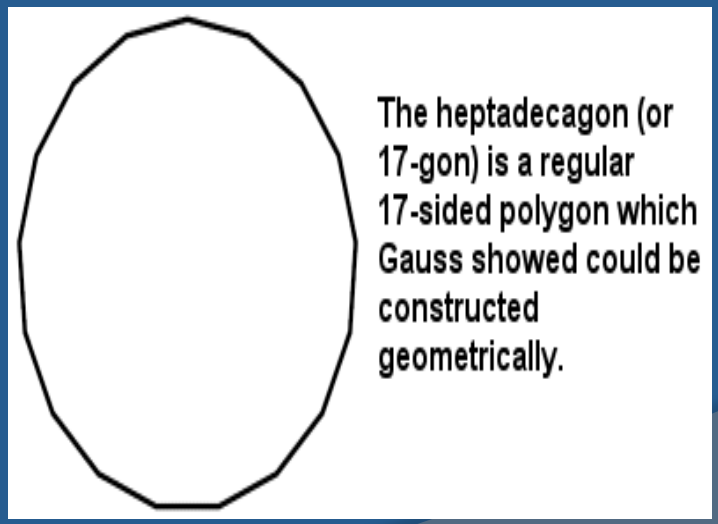
Biographical Information

Carl Fredrich Gauss was born on April 30, 1777 in Brunswick, Germany to poor working class parents. His father was a very harsh parent who discouraged Carl from going to school and hoped that he would follow one of the family's trades. But, his mother and uncle knew that he was very gifted in intelligence.

The 17-sided polygon

Carl Gauss found a way to construct a 17-sided polygon by only using a straightedge and a compass.





Statistics Contributions

- Gaussian (Normal) Distribution - a theoretical distribution with finite mean and variance

$$\frac{e^{-\frac{(x-\mu)^2}{2\sigma^2}}}{\sqrt{2\pi}\,\sigma} \approx \frac{0.398942 \times 2.71828^{-\frac{0.5\,(x-\mu)^2}{\sigma^2}}}{\sigma}$$

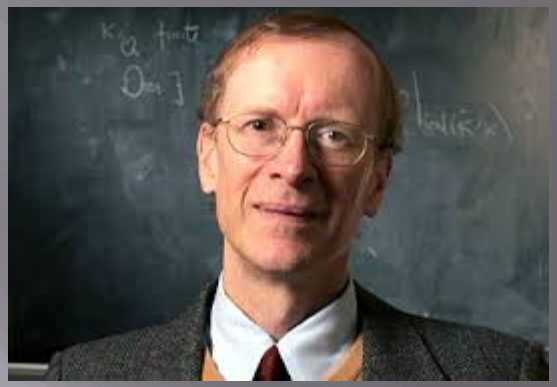
- Gaussian elimination – a method for solving equations in the form Ax = b

Other discoveries

Carl Gauss found out the formula of the sum of the first n integers.

$n(n+1)/2$

THE END



SIR ANDREW JOHN WILES

Known for proving Fermats last theorem.

By: RW

Born 11 April 1953 (age 60)
Cambridge, England

Andrew's Awards

- Fermat Prize [1995]
- Wolf Prize [1995/6]
- Royal Medal [1996]
- IMU Silver Plaque [1998]
- King Faisal International Prize in Science [1998]
- Shaw Prize [2005]

Fermat's last Theorem

- Fermat's Last Theorem stood as an unsolved riddle in mathematics for over three centuries. The Theorem itself is a deceptively simple statement within mathematics that Fermat famously stated he had solved around 1637. His claim was discovered some 30 years later, after his death, as a bare statement in the margin of a book, but Fermat died without leaving any proof of his claim.

- legendary prominence as an unsolved problem in popular mathematics. It is based upon the well known formula ("Pythagoras' Theorem") for a right-angle triangle discovered by the ancient Greek mathematician Pythagoras: $a^2 + b^2 = c^2$.
- As it stands, the equation has an infinite number of whole-number solutions, representing the sides of a right-angle triangle. Fermat claimed that he had a proof that this theorem had no natural-number (or "integer") solutions for any integer exponent more than 2 — in other words that although $a^2 + b^2 = c^2$ had an infinity of whole-number solutions, the similar equations

- $a^3 + b^3 = c^3a^4 + b^4 = c^4a^n + b^n = c^n$ for any other integer exponent "n" more than 2, would have no whole-number solutions. Fermat left no proof of the conjecture for all n apart from the special case $n = 4$.

HENRI LEBESGUE

By: Ryan

Henri Léon Lebesgue was born Beauvais, Oise on June 28, 1875. He was born into a middle class family, and was well-off for most of his life. His father died of Tuberculosis when he was still young, though, leaving him and his mother to support themselves.

CONTRIBUTIONS TO MATH

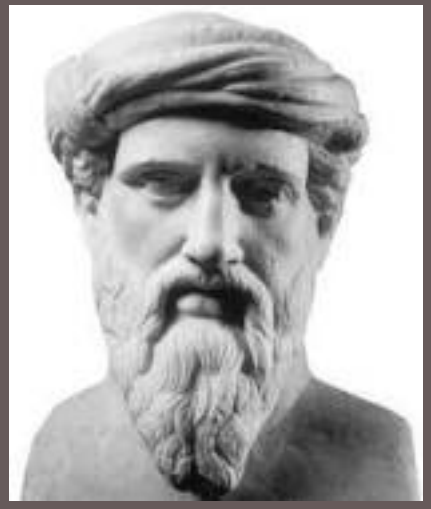
Lebesgue devoted most of his math career to higher level math. His first paper, "Sur l'approximation des fonctions“, was published in 1898. It explained that Weierstrass‘ theorem on approximation to continuous functions by polynomials. Between March, 1899 and April, 1901 Lebesgue published six notes in Comptes Rendus. The most famous of them dealt with the extension of Baire’s Theorem to two exponents. Example: f(x1,y)=2x+4y

LEBESGUE THEORY OF INTEGRATION

Integration is a mathematical operation that helps the informal idea of finding the area under the graph of a function. Lebesgue invented a new method of integration to solve this problem. Instead of using the areas of rectangles, which put the focus on the domain of the function, Lebesgue looked at the codomain of the function for his fundamental unit of area. His idea was to first define measure, for both sets and functions on those sets. He then started to build the integral for what he called simple functions; measurable functions that take only finitely many values. Then he defined it for more complicated functions as the least upper bound of all the integrals of simple functions smaller than the function in question.

THE LIFE OF HENRI LEBESGUE

PYTHAGORAS OF SAMOS



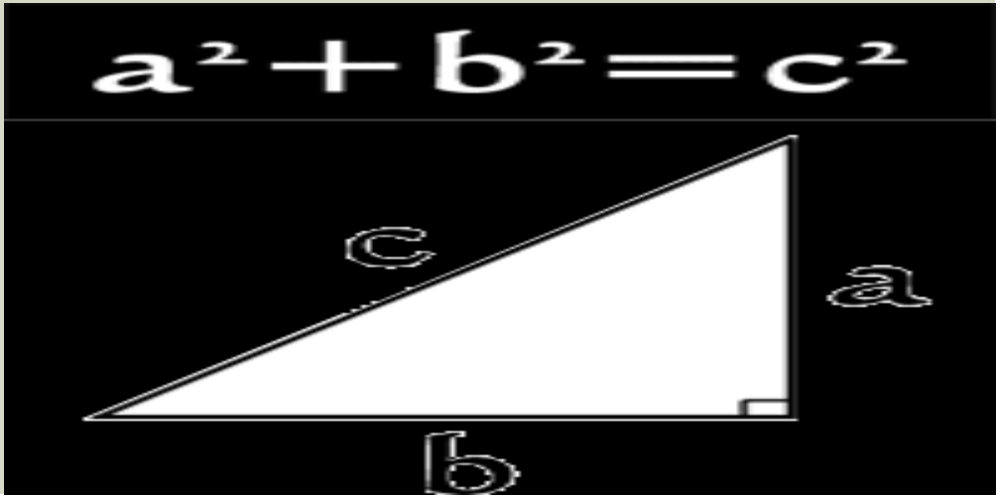
By: Samuel

LIFE

- Little is known about his childhood
- Born on the geek island of Samos
- Went on many travels and learned about mathematics
- Was captured by the Persians and was later set free

PYTHAGOREAN THEOREM

- The Babylonians are given some credit in creating Pythagorean theorem, Pythagoras is given credit for proving Pythagorean theorem.



PYTHAGOREANS

- The so-called Pythagoreans, who were the first to take up mathematics, not only advanced this subject, but saturated with it, they fancied that the principles of mathematics were the principles of all things.
- —Aristotle, Metaphysics 1–5 , cc. 350 BC
- Pythagorean set up a Organization that advanced the world of mathematics in many ways.

SOURCES

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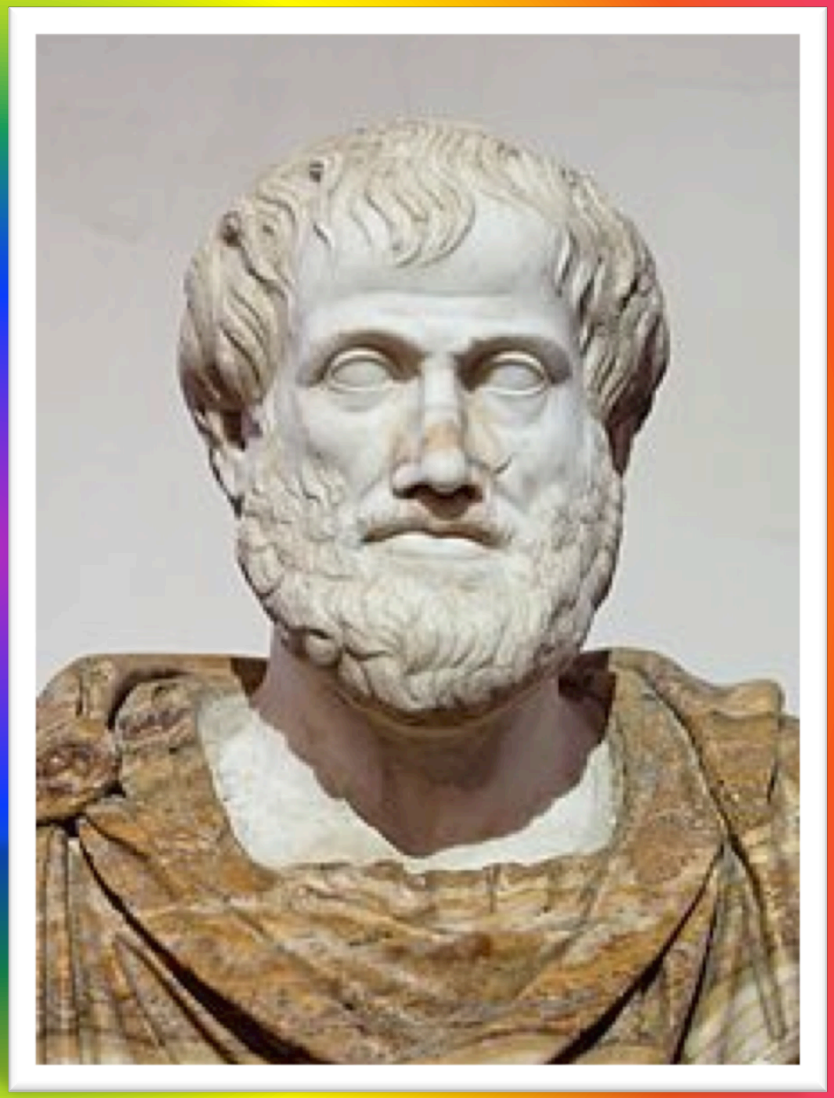
Aristotle

By Sydney

- Born 384 BC in Thessaloniki Greece
- Was a great philosopher, scientist, mathematician, poet, and writer
- Was taught by Plato, and taught Alexander the great and two other kings, Ptolemy and Cassander
- 2/3 of his writings are thought to have been lost



Aristotle was born in Thessaloniki, Greece in 384 BC. He went to study in Athens at Plato's Academemy. He lived there for 20 years before leaving the academy in 348 BC. It is said he was disappointed in the direction the academy was headed in after the school was passed down to Plato's nephew Speusippus. He became the tutor of Alexander the Great, and also taught two other kings, Ptolemy and Cassander. He fled Athens in 323 BC when Alexander the Great thought Aristotle was involved in a plot to kill him. He went to his mothers plantation, where he died a year later at the age of 62.

Aristotle studied

- Physics
- Metaphysics
- Poetry
- Theater
- Music
- Logic
- Linguistics
- Politics
- Government
- Ethics
- Biology
- Zoology

Aristotle's Ideas

- Human males have more teeth that females. (proven wrong)
- Heavy objects fall faster than light objects (proven wrong by Galileo)
- His largest contribution to math was his development of analytics, or logic.
- He was the first to think about the speeds involved in movement, and came up with some theories that state things like an object will go twice as fast through a medium that is half the density.

Aristotle says…

A number by definition is countable, so there is no number called infinity

I thought this was funny because we talked about this in class, and I agree with Aristotle, there is no specific number that is infinity.

http://en.wikipedia.org/wiki/Aristotle
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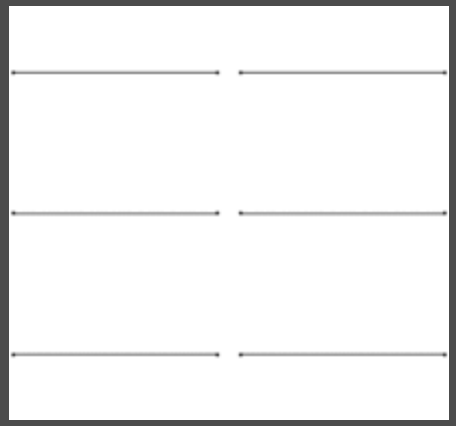
http://www.google.com/imgres?imgurl=http://upload.wikimedia.org/wikipedia/commons/thumb/a/ae/Aristotle_Altemps_Inv8575.jpg/220px-Aristotle_Altemps_Inv8575.jpg&imgrefurl=http://en.wikipedia.org/wiki/Aristotle&h=235&w=176&sz=1&tbnid=cvgYCMkpvo8cVM:&tbnh=186&tbnw=139&prev=/search%3Fq%3Daristotle.%26tbm%3Disch%26tbo%3Du&zoom=1&q=aristotle.&usg=__4-Fjm8c0t7UWw-UpE_GuMlRSY9c=&docid=XYKUNFCnIK-4vM&itg=1&sa=X&ei=zfW5UfvAIvbF4APpq4CwBA&ved=0CIoBEPwdMA0

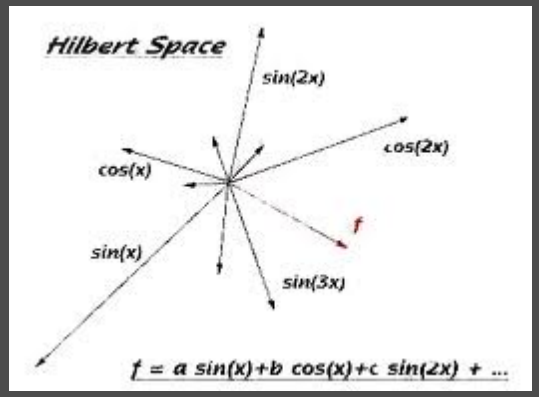
DAVID HILBERT

David Hilbert was a German mathematician born January 23rd, 1862 in Wehlau or Königsberg, East Prussia and died on February 14th, 1943 in Göttingen, Germany.

By: Truman

Major Math Contributions





Hilbert Space-A mathematical concept created by David Hilbert, which generalizes the notion of Euclidian space. The earliest Hilbert spaces were indispensable tools in the theories of partial differential equations, quantum mechanics, and Fourier analysis.

Major Math Contributions

Hilbert Curve-A space filling curve, a fractal first described by David Hilbert as a variant of Giuseppe Peano's space filling curves in 1890. Its Hausdorff dimension is 2 because it is space filling.