Augustin-Louis Cauchy was born on August 21, 1789, in Paris, France. His father was Louis Francois Cauchy, a senior French government official, and his mother was Marie-Madeleine Desestre. The French revolution took place early in Cauchy’s life, which cost his father his job. The times were tough for Cauchy’s family and for all the French in general; thus, Cauchy’s family moved from Paris to Arcueil, where he received his early education. However, as the political tensions lowered, his family and him moved back to Paris, where he continued his education in the best secondary school of Paris - Ecole Centrale du Pantheon.

Mathematicians such as Laplace and Lagrange were common visitors in Cauchy’s house, and seemed to have an interest in his mathematical education. However, Lagrange suggested that Cauchy study the languages before he undertook an education in mathematics. In such, he received numerous awards in Latin and Humanities. Throughout his later education he followed the path of engineering, always staying in the top few of the class and even ranking second in his placement exam into the Ecole Polytechnique in 1805. He was assigned to work on engineering the Ourcq Canal.

Cauchy would always wake up at 4 in the morning to do his work. He claimed to have enjoyed working, and he began to undertake heavy mathematical research. After writing his first paper, he felt that the only way to make a difference with his research was if he moved back to Paris. As he returned to Paris, he became psychologically ill - resulting in depression. Cauchy wanted a career in mathematical academics, but he was unable to land himself a position in the institute. He was denied a request for a teaching assistant job in 1813, which made him continue working on the Ourcq Canal. He took an unpaid sick leave for nine months so that he could work in his mathematics, and because of political tensions the Ourcq Canal project was stalled for even longer. This allowed Cauchy to invest the whole of his time into mathematical research.

Even though his life was already busy, Cauchy was able to manage a forty-year marriage and have two daughters. His wife happened to be the daughter and niece of the de Bure brothers, who were Parisian booksellers and publishers. He often times used this to speed up the process of publishing his papers as well as publish in print his lectures at the Polytechnique institute as well as his memoirs. An interesting example of this is an 1828 publication of his paper which he wrote in 1822 on continuum mechanics. It was published in the second volume of "Exercices de Matematiques", and Cauchy happened to be the only author published in this scientific periodical.

After publishing numerous more mathematical papers, Cauchy began to become a subject of talk. He was appointed as an assistant professor in the Polytechnical Institute at which he studied earlier. He received the Grand Prix award of the French Academy of Sciences. However, what really made him famous was his submission of his solution of one of Fermat’s claims on polygonal numbers. This feat enabled him to earn a position in the Academy of Sciences.

Cauchy was a very devoted Catholic, and his religious beliefs often interfered with his relationships with other scientists. He would bring religion into his claims and would often treat other mathematicians poorly. Because of political tensions in 1830, he decided to go on break from his mathematical research. In 1830 he left Paris temporarily to go to Switzerland. At the same time, many political events were running through France, and Cauchy was required to swear an oath of allegiance. He failed to do so, and so lost all of his positions in the institutes. In 1831, Cauchy moved to Turin for a year, teaching theoretical physics at the request of King of Piedmont. In 1833, he then moved to Prague and had the task of teaching King Charles X’s grandson. The end result was unsuccessful, as the latter had no motivation to learn the sciences or mathematics.

When Cauchy went back to Paris in 1938, he got his position back at the Academy but did not have any of his
previous teaching positions because of him not swearing the oath of allegiance. Cauchy became a candidate for many positions in the Academy, but because of his religious and political views, as well as his inability to swear the oath of allegiance, he gained lower amounts of votes than other candidates.

In 1948, Cauchy regained his teaching positions at the Academy, but he still had troublesome relationship with the other mathematical scientists. His negative relationships continued on for the rest of his life. A dispute between him and a mathematician named Duhamel went so far as to Cauchy being proven wrong regarding his claim on inelastic shocks, but Cauchy’s personality did not allow him to admit that he was wrong. Cauchy’s life ended shortly, in 1857, as he died peacefully in his bed at night.

**Cauchy’s mathematical works**

Cauchy produced 789 papers throughout his lifetime, which is second to only Euler. His papers covered various topics other than mathematics, including complex functions, optics, elasticity, group theory, mathematical physics and astronomy, hydrodynamics, and differential equations. In his early adult years, he showcased his genius by providing a simple solution to the problem of Apollonius, generalizing Euler’s formula for polyhedra, and solving many other elegant problems. He was also the first person to define a complex function of a complex variable.

Cauchy invented the systematic approach to studying the determinant. He gave the definition for many terms in advanced mathematics such as limit, continuity, and convergence. He discovered the Cauchy Riemann equations, even though they were already previously discovered by d’Alembert, which are used to obtain answers to physical problems that involve scalar potentials (e.g. fluid flow and electrostatics). The equations show that if we let

\[ f(x, y) \equiv u(x, y) + iv(x, y) \]

where \( z \equiv x + iy \), that the following equality holds as long as \( f \) is complex differentiable.

\[ \frac{\partial u}{\partial x} = \frac{\partial v}{\partial y} \]

Cauchy was one of the mathematicians who was able to generalize Euler’s polyhedron formula (at an astounding age of 22), which tells us that for any simple polyhedron, the number of vertices \( V \) minus the number of edges \( E \) plus the number of faces \( F \) will always equal 2, or that \( V - E + F = 2 \). Cauchy’s proof consists of taking a polyhedron and removing one face, then making it a 2 dimensional network. We then proceed by breaking up every shape with more than 3 edges into triangles. Then, every triangle is removed from the network only when the triangle shares no more than 1 edge with the exterior of the polyhedron. If, at any time, a triangle is found that shares 2 edges with the exterior, it is removed first. Cauchy saw that this process did not change the relation of \( V - E + F \), and that the end result was a singular triangle for which the formula yields 2. As such, it can be generalized that the result holds for all simple polyhedrons\(^1\).

After coining the term for convergence, Cauchy is known for having developed the Cauchy convergence test for infinite series. This test, unlike most others, does not involve finding the limit of the sequence, which made the idea very useful for various other applications. The test follows that a general series

\[ \sum_{i=0}^{\infty} a_i \]

\(^1\)For a visualization of the steps involved in the proof, https://plus.maths.org/content/eulers-polyhedron-formula provides a good overview.
is convergent when there exists, for every $\varepsilon > 0$, a natural number $N$ such that

$$|a_{n+1} + a_{n+2} + a_{n+3} + \ldots + a_{n+p}| < \varepsilon$$

is true for all $n > N$ and $p \geq 1$.

In 1813, Cauchy proved Fermat’s polygonal theorem which stated that every integer greater than zero is a sum of at most $nn$-gonal numbers. That is, every positive integer is a sum of no more than 3 triangular numbers, 4 square numbers, 5 pentagonal numbers and so on. For example, Although Gauss and Lagrange were able to prove only the case for triangular and square numbers, it was Cauchy who proved the whole theorem to be true.

In terms of mathematical works and accomplishments, Cauchy is the most famous for developing complex function theory on his own, as well as coming up with the residue theorem. One of the first few key theorems proved by Cauchy was the theorem now known as Cauchy’s integral theorem, which states that:

$$\oint_C f(z) \, dz = 0$$

Cauchy wrote the paper on this theorem at the age of 24, but he gave the full form of the paper 11 years after. To many, this paper is regarded as Cauchy’s most important contribution to the whole of mathematics. In fact, the results that Cauchy obtained more than 150 years back are still the essence of complex function theory that is being taught today to physicists and electrical engineers.

One of Cauchy’s most influential books was the Cours d’Analyse, where Cauchy rejected the notion of Generality of Algebra that was used by other mathematicians such as Euler and Lagrange. Instead, Cauchy used the notion of geometry and infinitesimals, the latter of which he referred to as a sequence that tended to 0. In this book, he defined continuity as follows: ”The function $f(x)$ is continuous with respect to $x$ between the given limits if, between these limits, an infinitely small increment in the variable always produces an infinitely small increment in the function itself.”

Cauchy was well known for his work done on permutation theory. In 1815, he published two memoirs on permutations, acknowledging Lagrange and others in his work, which he titled ”Memoire Sur le Nombre des Valeurs”. This roughly translates to ”Memoir of the number of values”. He wanted to know how, given a function of several variables, the value of the function would change if the variables were rearranged in all possible ways.

The problem was known for a long period of time now, and so the motivation behind finding a solution was simply to solve the nagging problem that arose from the history of the subject and was yet unexplainable.

Cauchy was also the first mathematician to prove Taylor’s theory. Taylor’s theorem is named after Brook Taylor, and it states the following: If we let $k \geq 1$ be an integer and the function $f : \mathbb{R} \to \mathbb{R}$ be $k$ times differentiable at the point $a \in \mathbb{R}$. Then there exists a function $h_k : \mathbb{R} \to \mathbb{R}$ such that:

$$f(x) = f(a) + f'(a)(x-a) + \frac{f''(a)}{2!}(x-a)^2 + \ldots + \frac{f^{(k)}(a)}{k!}(x-a)^k + h_k(x)(x-a)^k,$$

and the $\lim_{x \to a} h_k(x) = 0$

The polynomial found in Taylor’s theorem is a $k^{th}$ order Taylor polynomial.

Cauchy also created an extension to the Mean Value Theorem, which gave it the name of **Cauchy’s Mean Value Theorem**. The theorem is a generalization of the Mean Value Theorem itself, and it states that if
functions \( f \) and \( g \) are both continuous on the interval \([a, b]\), and differentiable on the open interval \((a, b)\), then there exists some \( c \in (a, b) \), such that:

\[
(f(b) - f(a))g'(c) = (g(b) - g(a))f'(c).
\]

This implies that if \( g'(c) \neq 0 \) and \( g(b) \neq g(a) \) then:

\[
\frac{f'(c)}{g'(c)} = \frac{f(b) - f(a)}{g(b) - g(a)}
\]

Cauchy's Mean Value Theorem can be used to prove l'Hôpital’s rule. The Mean Value Theorem is also a special case of Cauchy's Mean Value Theorem when \( g(t) = t \).

He wrote a textbook on the necessary theorems of mathematical analysis and used it to teach his students at the Polytechnic Institut. In it he gave the condition of the limit, and it is still being used today. In totality, Cauchy wrote an enormous set of books that impacted the motion of mathematics. In fact, it took almost a century to collect all of his papers and books into the 27 volumes that exist today.

Collaboration with other scholars

Cauchy's religious beliefs and his non-collaborative personality proved to be a difficulty when working with other mathematicians. Cauchy was a man who liked working alone, and hated when people would try to disprove him. However, Cauchy was not an ignorant man. Many times in his papers about residue theory, he would use the results of a mathematician named Mikhail Vasilievich Ostrogradskii. They collaborated together for a while, until Ostrogradski's father became angry at his son for spending so much time at Paris, away from home. As so, Ostrogradski’s father stopped sending him money, trying to influence him to come back home. Since Ostrogradski was unable to pay his bills, he was taken to court and was in deep financial trouble. However, Cauchy, after hearing about Ostrogradski’s struggle, decided to pay off his bills. Cauchy then continued to help Ostrogradski find a job, eventually landing him a position at College Henry IV.

Cauchy was an advocate of mathematical rigor, which led him to criticize the work of many other mathematicians, especially Simeon Poisson and Pierre-Simon Laplace. Because of his criticisms, his relationship with Poisson and Laplace began to deteriorate, even though Laplace was himself a protege of Cauchy. Slowly, tension began to rise between Cauchy and Poisson, as they tended to work within the same areas and constantly strived to be better than the other. Even though they were often in competition, however, they were working on scientific matters and so the two were forced to get along. In the late 1810s and early 1820’s, Poisson was a member of 19 evaluation commissions along with Cauchy, who was the reporter, and so nobody collaborated with Cauchy more frequently or more intensely during this period as did Poisson.

Cauchy and Poisson’s relationship continued to deteriorate, however. In 1823, the evaluation commission was unable to reach an consensus on the report that Cauchy had written about the work of a mathematician named Mathurin Jacques Brisson. Cauchy was very pleased with Brisson’s work while Poisson was very opposed to it. Poisson influenced Cauchy to make the report public and read his report to the Academy, which denied his report. This was a blow to the ego of Cauchy, as it was embarrassing to have the Academy deny your report. He got his revenge when a new evaluation commission was created to evaluate Brisson’s paper, which discluded Poisson but kept Cauchy as reporter. In 1830, suddenly, academic collaboration set forth again between the two. In only 8 months, they worked together on 6 commissions - something that has not been seen with Cauchy since 1823.

In all, Cauchy was very forthcoming to those of his colleagues that were conservative in their political nature and Catholic in regards to their religious self. Cauchy was the most close to Andre-Marie Ampere, who was
Cauchy's analysis tutor. Although Cauchy had little interest in electrodynamics, Ampere's field of research, the two worked very close to one another at the Academy. They always faced criticism from the committee together, and had both chair positions of analysis and mechanics in the polytechnic institution. They also collaborated heavily in the Academy, as both of them were on the evaluation committee.

Ampere thought highly of Cauchy, and legend says that he even attended Cauchy's lectures, sitting as a student. During the introductions of Cauchy's textbooks he would give a few words of acknowledgement for Ampere and his observations. Compared to the many negative relationships that Cauchy had, his relationship with Ampere was different. Many times, Cauchy would refer to Ampere as a truly good example of a deep Christian scholar and scientist.

Historical events that marked Cauchy's life.

Cauchy's life was surrounded by many events that we now consider significant, historical events. In his early childhood, Cauchy's family had to live through the French revolution. Cauchy's father, Louis-Francois was devastated. He took a post as a Chief of the Bureau of Almshouses and Charity Workshops. He kept this position until the Reign of Terror started in 1793, when two rival French political parties were enraged by the revolution and wanted to establish each faction's dominance. When Louis Thiroux de Crosne, the lieutenant general of police of Paris, was executed during the Reign of Terror, Cauchy's father began fearing for himself and his family, since it was Paris where he stood a chance of being denounced by the revolutionaries. As so, Cauchy's mother and father decided to take their two, at the time, children and move out of Paris to go to Arcueil so that they would not have to bear the consequences of the revolution. They remained there, in their country house, until the Reign of Terror had passed.

Although Arcueil was supposed to be a safe haven for Cauchy and his family, it was barely an easy place to live. Cauchy's father wrote about the life in Arcueil: "We never have more than a half pound of bread - and sometimes not even that. This we supplement with the little supply of hard crackers and rice that we are allotted. Otherwise, we are getting along quite well, which is the important thing and which goes to show that human beings can get by with little". This life was very harsh for Cauchy, and he was never able to adjust to the stressful conditions - especially the uncertainty of his father being a free man. With the fall of Robespierre in 1794, Cauchy's family was once again able to go back to Paris, with his father regaining some of the titles he previously abandoned.

When the coup d'état of 18 Brumaire occurred, the consulate was established with Bonaparte as first council. Cauchy's father heavily supported the new regime and became very involved in the political aspect of Paris. In 1800, he was elected to the position of Secretary-General of the newly established Senate. At roughly the same time, he also become the Archivist and Keeper of the Seal of the Senate, working right under the hood of the Chancellor of the Senate - Count Laplace. For Louis-Francois, this was a rise in prestige and in honor, as he now undertook very prestigious positions for the government. For Cauchy, however, this was an opportunity to come over and work in his father's office. In there, a few times his father would introduce him to Laplace and Lagrange, both of which were mathematicians of upper rank as well as French Senators. They took an interest in his mathematical education, and even made a remark one day at a meeting that, "Now you see that little fellow there, don't you? Well, one day he will replace all of us simple geometers." They advised his father to enroll Cauchy in a literature course so he can learn the languages. This his father did. In such, a single coup d'état of a French regime led to Cauchy beginning his education - and eventually becoming a great mathematician.

The revolution of 1830 proved to be a hit for Cauchy as well. At that time, Cauchy held good educational positions and was married with two daughters. However, this was all disrupted when the new government had started demanding an oath of allegiance. Cauchy venerated King Charles X and his family, as he thought
that Charles X was the refuge for France after all those years of political struggle and tension. As such, he thought he was required by the government to perjure himself, and so he left all his positions as well as his family and fled to Switzerland. He then continues to travel from Switzerland to Prague, and eventually, in 1838, he came back to Paris. He regained his position at the institute, which was left available all throughout his time away from France. When, eventually, Poisson’s death occurred and his seat was left vacant, Cauchy was nominated for Poisson’s position by the Bureau. However, it was clear that Cauchy would have to take the oath of allegiance, something there was little chance he would do. When the revolution of 1848 happened, the new government demanded no such oath and so Cauchy was nominated for the position again. Thus, Cauchy was able to get his chair of Mathematics back at the Paris University.

**Significant historical events around the world during Cauchy’s life**

Around the world, many significant events were occurring in Cauchy’s time. When he was born, France was undergoing a revolution and Napoleon Bonaparte became the leader of France. In 1800, Napoleon was able to conquer Italy and establish himself as First Consul in France. In 1801, Austria established peace, temporarily, with France. At the same time, the United Kingdom and Ireland formed one Monarch and Parliament, where Catholics were excluded from voting.

In 1803, France and the United States established a deal about some of the territories in the Americas. Thus, the Louisiana purchase happened, in which the US, for $15 Million, doubled their territory. In 1804, Haiti declared its independence from France. Meanwhile, Napoleon transformed France into an Empire and declared himself the Emperor of France. In 1808, the French armies began to occupy Spain and Rome, lengthening the now existing empire to greater scale. Britain started helping out the Spanish guerillas against Napoleon in the Peninsular War.

In June of 1812, Napoleon’s army began an invasion into Russia. Because of the cold winter and the Russian’s brutal tactic of letting the Frenchmen freeze and starve over in the cold mountains of Russia, many of Napoleon’s soldiers were lost. In totality, some 600,000 men were lost. In 1814, the French were defeated by the allied soldiers in the War of Liberation. Because of this, Napoleon was exiled to Eiba. However, in 1815, Napoleon came back and tried to regain the throne. In so, Napoleon’s 100 Days began, which ended with King Louis XVIII taking throne. In 1822, the Greeks declare their independence from Turkey and declared a Republic. Turkey then gets very aggravated and invades Greece, which causes Russia to declare a war against Turkey 6 years later. With Greece being aided by France and Great Britain, the war ended and Greek independence was finally recognized by Turkey.

In 1823, the US writes and establishes the Monroe Doctrine, which creates a fine line of no crossing between the two hemispheres of the world. Mexico thus becomes a republic after declaring independence from Spain, and the Monroe Doctrine gives it a layer of protection. Two years later, the first ever photograph was taken by Joseph-Nicephore Niepce, who was a French inventor who also collaborated on the invention of the first-ever internal combustion engine. Shortly after, in 1830, the French army invades Algeria, which was an attempt by King Charles X to increase his popularity in France by boosting the nationalism of the French people and pointing them away from his domestic policies.

In 1831, Poland makes an attempt to revolt against Russia in the November Uprising. They joined together with small forces from Lithuania, Ukraine, and Belarus, but despite local battle victories, they were crushed by the mighty Imperial Russian Army. In the same year, Belgium had an uprising against the netherlands in the Belgium revolution, but the Netherlands was unable to stop them since they couldn’t get the support they once had with France or other great powers. Belgium and Netherlands thus split into their own respective countries. A couple years later, Britain abolished slavery with its Slavery Abolition Act and Charles Babbage, an English mathematician, inventor and engineer, invented the first ever analytical engine. This engine was a
sort of mechanical computer, which made Babbage one of the earliest computer pioneers that there were.

At the age of 18, Victoria became the Queen of England upon William IV’s death in 1837. Two years later began a three-year war between Great Britain and the Chinese Qing Dynasty about diplomatic relations and trade. The war was named the Opium War because of the conflict Britain had over importation of drugs into China. In 1840, the British North America Act came to place, which united upper and lower Canada into one larger entity.

The United States, within the span of 1844 and 1845, is able to annex Texas and open up 5 Chinese ports to US ships. Samuel F. B. Morse patents the telegraph, which quickly spreads to the new communication standard around the world. Only Great Britain declined to switch, and kept their old needle telegraph apparatus of Cook and Wheatstone. In 1846, the United States declares war on Mexico, which ends 3 years later with Mexico ceding Texas, Arizona, California, Nevada, New Mexico and Utah. As the war with Mexico was finishing, Louis Napoleon became elected President of French Republic. To the surprise of many, in 1852 he proclaimed himself Napoleon III, or the leader of the Second Empire. In the last few years of Cauchy’s life, the Crimean War began between Russia on one hand and Great Britain, Ottoman Empire, and France on the other.

Overall, the History of the world during Cauchy’s time can be regarded as somewhat pessimistic. Throughout the 68 years of Cauchy’s life, there had occurred many revolutions and wars. Many countries split from others while some united, changing the way the world operated. Specifically in France, the period was rough for the French people as many soldiers would die while fighting against Russia, and the economy of France was in a low during the period as well. At the same time, many technologies were invented, and the period of time can be describe as a period of ingenuity for the inventors at the time.

Significant mathematical progress during the Cauchy’s lifetime

Augustin-Louis Cauchy lived in a mathematically exciting time - especially for the French. In 1794, 5 years after Cauchy’s birth, Adrien-Marie Legendre published his Elements de Geometrie, in which he tried to produce a simplified but more effective version of Euclid’s Elements. In 1795, the Ecole Polytechnique was established in France, the institute which Cauchy would find himself very acquainted with in his later years. One year later, in 1796, Laplace published his Systeme du monde, which described the mechanics of the solar system. It gave a general account for all of the occurrences in the solar system, as if a summary of the current literature on astronomy.

In the year of 1797, Lagrange published his work on algebraic functions, titled Fonctions Analytiques. In it, he studied various functions in the form of their power series expansion. Lagrange believed that every function could be written as a power series expansion. In 1799, the metric system was introduced, which was at first only a set of definitions for mass and length (kilogram and meter, respectively). However, as time went on, the metric system evolved to include many more units and the definitions for the kilogram and meter were somewhat refined.

In 1798, Gauss published his Disquisitiones arithmeticae book, where he combined results for number theory from various legendary mathematicians, such as Fermat, Euler, Lagrange and Legendre, and incorporated some results of his own. This book was revolutionary in that the previous published works on number theory were all isolated, but he brought together ideas from multiple people and places, incorporating them into one textbook.

In 1768, a French mathematician named Jean-Baptiste Joseph Fourier was studying the transfer of heat and vibrations. In doing so, he gave birth to a representation of a function called a Fourier Series. A Fourier Series is basically a way of representing a function in terms of a sum of simple sine waves. Fouriers’s discovery led to
the beginning of a new branch of mathematics called Fourier analysis, which is a study of functions and the ways they can be approximated with a sum of simple trigonometric functions.

In 1827, Cauchy himself published his work titled Calculus of Residues, which generalized his integral theorem. Shortly after, in the same year, Ohm’s law was established by Georg Simon Ohm which related resistance with voltage and current. In the next few years that followed, Babbage’s Analytical Engine came to be, as well as the first telegram. Michael Faraday came up with the concept of electromagnetic induction in the year of 1831 as well.

Connections between history and the development of mathematics

One can notice that the majorite of innovations and new mathematical discoveries were made by the French. This is no coincidence; that is, after the French Revolution of 1789, the educational system of French schools and institutions was reformed. This reform happened to focus on engineering, which explains why many of the novelties produced during Cauchy’s life were inventions. The Ecole Polytechnique was created, which Cauchy was both a student and a professor of, which allowed a multitude of progress to occur with respect to mathematics. Besides Cauchy, some of the other leaders of mathematics at the time, such as Laplace and Lagrange, were professors and examiners. This created an aura of mathematical ingenuity at the institute. After the revolution, Napoleon greatly emphasized the importance of mathematics in its practical potential, especially within the French military. This gave French intellectuals a big boost.

Outside of France, only a few mathematicians are noteworthy of any mention during the time. The first is Carl Gauss, who was the director of Gottingen University Observatory in Germany. He was one of the greatest out of the existing scientists and mathematicians of the time, as he was able to publish major work on number theory, celestial mechanics, and portions of probability theory and analysis. It was not uncommon for, at this time, there to be many intelligent mathematicians come out of Germany at this time as well, since Germany was greatly impacted by the French Revolution as well. However, the German approach was quite different to that of the French, since it was less focused on continuing the flow of mathematics for practical reasons and more focused on supporting pure mathematics for its own sake.

The mathematics of Britain had a little bit of itself revived in the early and middle 19th century. Charles Babbage was an Englishman himself, and although he did not pioneer the idea of the computer as Leibniz or Pascal did, he did design a machine that could automate calculations based on a form of mechanical instructions written on a piece of card. Two other English mathematicians in the 19th century are noteworthy of mention. George Peacock is usually given credit for the invention of symbolic algebra. The other mathematician is George Boole, who devised a logic version of algebra in which the most common operators are And, Or, and Not. He is also given credit for inventing the Boolean data type, which essentially consist of two states - an off state (0) and an on state (1).

As can be seen, this time period in History was big for the French in terms of mathematical growth. It gave rise to many mathematicians who developed mathematical theories further and allowed for progress to occur. At the same time, this period in history is significant in that it represents the time during which computer mathematics began to see light. The English mathematicians were big on inventing computational devices as well as tools to use for these devices, such as the boolean. Although not directly seen in the particular historical period, the mathematics produced by Gauss was also very important for computer science theory in the distant future, as number theory found its applications in various forms such as cryptography or error correcting codes.
Remarks

In general, Augustin Cauchy lived in a very mathematically exciting time. He was born with a talent for mathematics and engineering, but he was also lucky to have been introduced to legendary mathematicians throughout his childhood that were able to guide him. Cauchy lived in the right place at the right time, being involved with the three legendary 'L's: Laplace, Lagrange, and Legendre. Cauchy was able to develop the mathematics of complex number theory that is still often used today, as well as produce an enormous amount of books and papers that only Euler himself did beat.

Certainly, the history of the time around Cauchy affected him greatly. The French revolution at the start of his life made him move around Europe for quite a while, but it also allowed things to set in place for his future. Because his father was a politician and the fact that some of the mathematicians worked for the government as well, Cauchy’s father was able to show his son to some of the mathematical powerhouses through the time. When he finished school, he was able to work with these people and make the many discoveries that he had yet to make.

References


