Bio of a Mathematician

Carl Friedrich Gauss
Carl Friedrich Gauss was a mathematician born April 30\textsuperscript{th}, 1777 in Brunswick, Germany, to Dorothea and Gebhard Dietrich Gauss. He is sometimes called the ”prince of mathematics”, or the “greatest mathematician since antiquity.” He became interested and noticed in mathematics at an early age of seven, in elementary school, when his teacher saw him add up the numbers 1 through 100 instantly, simply by seeing that the sum was 50 pairs of numbers, each pair summing to 101. As early as three, however, he corrected an error in his father’s accounting books, and was regularly looking at them by age five. Gauss was attending a Gymnasium (a senior secondary school in Germany and some other countries in mainland Europe) by age twelve, Collegium Carolinum by age fifteen, and then University of Göttingen. There, he discovered several important theorems.

Gauss married twice, first to Johanna Osthoff in 1809. They had three children together, Joseph, Wilhelmina, and Louis. His wife unfortunately suffered an early death, shortly followed by one of their children, Louis. This was a lot for Gauss to handle, forcing him into depression that he never was able to fully recover from. He was, however, able to marry again, this time to his former wife’s best friend, Friederica Wilhelmine Waldeck, also known as Minna. Together they had three children, Eugene, Wilhelm, and Therese. Gauss was a bit controlling of his son’s professions, in that he wanted them to stay out of mathematics and science, due to a fear of them hurting the family name, as he didn’t believe any of them could surpass his achievements. Eugene, for example, wanted to study languages, but Gauss wanted him to become a lawyer.
Eugene ended up moving to the United States after a dispute over a party, and was a very successful businessman there.

Gauss has made contributions to almost every field of mathematics, but he was most interested in numbers. One of his first accomplishments was that he was the first person to be able to find a pattern in the occurrence of prime numbers. This is something that not even the best mathematicians of the time were not able to do. One of his other big accomplishments was his work with complex numbers. At the time, there was no real bridge between imaginary numbers, and real numbers, despite imaginary numbers having been used for many years. Gauss was the one who really helped to bring these two together. One way of doing this was finding a way to graph these equations. Although he was not the first to do so, he was responsible for making the process more well-known, usable, and used. He was also the first to be able to create a heptadecagon (regular polygon with 17 sides) using only a ruler and compass. This had never been done before, and showed that the shape could be constructed geometrically.

One of his biggest accomplishments though, is the writing of his book “Disquisitiones Arithmeticae”, which was published in 1801, when he was a mere 24 years old. His book is referred to in modern times as one of the most influential mathematics books ever written, and laid the groundwork for modern number theory. This book contained a representation of
Gauss’s method of modular arithmetic, one of his works. He also introduced the congruence symbol ≡ in this book, as well as gave the first two proofs for the law of quadratic reciprocity.

He spent his career doing a few things, one being the “go-to man” for complex math equations that others couldn’t handle. Another being writing his book, which he filled with mathematical wisdom. He also had a keen interest in theoretical astronomy, particularly in predicting future locations of space objects. For example, he made a prediction regarding Ceres’s position of reappearance after it passed behind the sun.

Gauss has impacted the world today by introducing things such as the Gaussian distribution, Gaussian function, and the Gaussian error curve. These are used to graph data that will form a bell curve shape. He also laid the foundations for future mathematicians and mathematic discoveries. His book was very inspiring and influential to many people, and certainly helped with these. His discoveries, and what was discovered after because of these discoveries, and his proofs are what he’s really done to impact the world today.

He also published works on non-Euclidean geometry. This, however, can be regarded as a mistake. He was actually trying to prove the parallels postulate, but was unable to. He instead ended up with theories and proof that didn’t align with the postulate, hence non-Euclidean geometry. Gauss never published this work though, as the mathematic world was focused on Euclidian geometry, and Gauss wanted to avoid any possible controversy that could be created.
by coming between them with statements that there is more than just Euclidian geometry to be seen.

Early in his life, Gauss was generally friendly, albeit quite shy. Later in his life after his fame had risen, he began to turn sour. He was no longer who he used to be. When people came to him for help, he was often dismissive, unpleasant, and bitter. He had arrogant tendencies, and acted as if he was better than people. He began to look down on people who weren’t as smart as him, such as the people who came to him for help. Overall though, he’s always been hard working, and a perfectionist. He refused to publish anything that wasn’t finished and absolutely perfect. He wasn’t interested in showing off how he got to some conclusion, only the conclusion itself. He often kept his work a secret until it was perfect, and fully proven, such as his work at around 15 on the occurrence of prime numbers. He had found this early on, but never revealed his findings as his method only gave an approximation, and couldn’t be definitively proved.

Carl Friedrich Gauss died at age 77 on February 23rd, 1855, in Göttingen, Kingdom of Hanover from natural causes. He was in no way a hero, but his advances in math are admirable, and certainly significant. He didn’t just work in math though, and had an interest in sciences and astrology, even going as far as inventing the first electric telegram. Gauss’s creations have shaped his immediate, and our distant future, in mathematics, and sciences.
References


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