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Mathematics within Literature

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Mathematics is no more computation than typing is literature.

~John Allen Paulos

Many people think that mathematics and literature are two separate entities, but they are not. These two correspond with each other and are complementary in their styles and philosophical standpoints. As mentioned in the quote by Professor Paulos, these two disciplines have connections, and there are the basics of each subject for them to work with each other. From Greek mathematician Euclid to Islamic mathematicians al-Khwarizmi and Ibn al-Haytham, these philosophers expanded on mathematics that changed the world in literature.

Euclid was a famous Greek mathematician from the Hellenistic Age. He created the "formations of both plane and solid geometry" (Matthews et al. 95). This style of geometry was used as mathematics studies until the nineteenth century. With the information learned from Euclid's studies, structures such as ashlars and voussoirs were created. These pieces derived from Rome demonstrate the different structures that literature also utilizes. From the format of poetry to an epistolary, each style of literature has its unique structure. This is like each Roman architecture structure created by geometric concepts founded by Euclid as they all had the same basis that turned into something new throughout history.

Almost one thousand years later, Islamic mathematician al-Haytham expanded on Euclid's geometric works and studies. The information that Al-Haytham learned contributed to further studies of mathematics and has continued to be used today. This shows how mathematicians complement one another and learn from each other. This can be seen in numerous literary works such as *The Code of Hammurabi* being an influence on the modern-day set of rules in the United States Amendments. *The Code of Hammurabi* was the first set of rules that were known to be wrote down. The changing of rules for a society showed the advancements in culture and civilization.

Other Islamic mathematicians, including al-Khwarizmi and al-Battani, were involved in the "House of Wisdom." The "House of Wisdom" was a place where scholars would go to exchange knowledge and was known as a library (Matthews et al. 212). These two mathematical philosophers were considered very intelligent men, not only because of their mathematical accomplishments but because of the philosophy involved. The word philosophy is derived from the Greek words *Philos,* meaning love, and *Sophia,* meaning wisdom (Hall). They were invited into the "House of Wisdom" because of the knowledge that they learned within their studies to make them mathematical philosophers and scholars.

Mathematician al-Khwarizmi expanded on the theories created about algebra. According to the Oxford Dictionary, algebra is defined as: "the part of mathematics in which letters and other general symbols are used to represent numbers and quantities in formulae and equations." Algebra is the study of equations and learning how they work. As noted by Dr. Hall, "what you

do to one side of the equation, you must do to the other," and this is seen throughout literature. In layman's terms, the conclusion of an essay has to reflect the introduction and has the paragraphs in between as the equal signs. This is because there are two sides of an equation in mathematics. In Book III from Boethius' *The Consolation of Philosophy*, there is one major theme that exemplifies the balancing of an equation. As mentioned during a class presentation discussing *The Rule of St. Benedict* along with *The Consolation of Philosophy*: "God is equal to supreme goodness, goodness is equal to happiness, therefore, happiness is equal to God" (Anonymous). This theme from Boethius was found and interpreted by using mathematical structures to find the meaning behind the selection.

Overall, mathematics connects to literature in many ways. The mathematicians are comparable to the authors of the selections because of the information being passed from one to another. The structures between mathematics and literature are comparable because of the patterns between them that make them each unique. Modern-day professor of mathematics John Allen Paulos believes in the connection between mathematics and literature with his quote explaining how there is not an enormous difference between the two. Without the philosophers involved in mathematics, there would not be the diversity of literature that there is today.

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