No one has ever seen a perfect circle, square, or equilateral triangle. Although we know infinity, as a concept, exists—it must, as computers run on the idea—we will never be able to write it, see it, or count to it. Math is the base of all sciences and a lens through which to experience and understand the universe. Regardless of whether one believes that the universe is inherently perfect, the search for perfection in and of itself is meaningless and impossible. The only logical thing to do is accept your own inability to understand and move forward in life with a strong sense of your own personal reality.

The natural world is governed by inescapable mathematical rules and relationships. When Dr. Stephen Marquard said that "All life is biology. All biology is physiology. All physiology is chemistry. All chemistry is physics. All physics is math," he logically traced the influence of math in our understanding of life. This quote, however, demands a definition for "math." Does math, and in turn, numbers actually exist or are they only an attempt to understand and quantify what we experience as life? Merriam Webster defines mathematics as "the science of numbers and their operations, interrelations, combinations, generalizations, and abstractions and of space configurations and their structure, measurement, transformations, and generalizations" (Merriam-Webster "mathematics"). A number is but an adjective that is used to describe something else and thus does not exist in the physical world. One can possess three apples, but never obtain the concept of "three" just as one can have red apples but not "red" in its purest form. Numbers exist only to describe complex concepts like space. Space, however, is something that humans interact with and experience every day. Math is a system through which one may attempt to understand the universal truths of space and quantity ("Illuminator" Randi Web Forum).

Math exists because space, time, and quantity exist. Mathematics provides answers for questions about the nature of the universe based on the assumption that all calculations are completely accurate and flawless. Because math functions based on perfection, one could argue that perfection also exists.

Proportion and rhythm are two mathematical concepts that illustrate the universal quality of mathematics. Rhythm is a direct result of proportion. The relationship between the units of time in rhythm can be directly expressed as a proportion. Plato says that "Rhythm [is] a most general concept dominating not only Aesthetics but also Psychology and Metaphysics" (Ghyka 7). Because rhythm is applied mathematics, math must also "dominate" aesthetics, psychology, and metaphysics. The ancient Greek "quadrivium," the four arts taught in universities, is comprised of geometry, arithmetic, music, and astronomy (Walker & Company 5). All four of these arts are directly controlled by space, quantity, and change, the three principles of proportion and rhythm (Ghyka 7). Both of these examples show how the ancient Greeks embraced math, and especially geometry, as a contributing factor to their universe. Through valuing and teaching mathematical concepts, the Greeks sought to understand their relationship to perfection.

Because the design of life is based off of a proportion that is said to be "perfect" and "beautiful," some may argue that life itself is perfect. The "golden ratio" or "golden mean," otherwise known as "phi," is the most important proportion to consider when it comes to understanding the timeless intersection of math and life. The golden ratio is expressed exactly as $\frac{1+\sqrt{5}}{2}$ and commonly approximated to 1.618. This ratio corresponds directly to Fibonacci's famous number sequence (0, 1, 1, 2, 3, 5, 8, 13, etc). Many naturally occurring elements of life follow the golden mean, including leaves on a stem, the spirals in pinecones and shells, proportions in chemical compounds, and human bodily proportions (Elam). The golden ratio is of

great importance in classic painting and sculpture. Ancient Greeks use the ratio to define the proportions in the bodies of their sculptures. "There is a documented human cognitive preference for golden section proportions throughout recorded history" (Elam 21) and the proportions of many architectural and design-based projects have been a result of this preference. Examples of this include the Parthenon, Stonehenge, and the famous Eames chair. "The power of the golden section to create harmony arises from its unique capacity to unite different parts of a whole so that each preserves its own identity and yet blends into the greater pattern of a single whole" (Elam 19), which speaks to the notion of life itself: each smaller part of the natural world comes together to create something larger that functions perfectly with no outside interaction while each singular part also exists as an individual. The natural world is a closed loop, sustainable system that can be said to function "perfectly." The importance of the "perfect" golden ratio in nature's design creates an obvious connection between the universe and perfection.

Although a generalized representation of phi recurs frequently in nature, phi can never be accurately represented in the physical world. Just as one can never construct a perfect square or circle, it is impossible to perfectly recreate the golden ratio. Numerical or geometric perfection can only be found in theory. Although the natural world is based on theoretical perfection it will never be a perfect representation of phi. Nature is conceptually perfect but realistically flawed. What exists in the physical world of nature does not completely match up to theoretical perfection.

The ancient Greeks had rules for their classic constructions. The only tools prohibited were unmarked straightedges and compasses. Three constructions were found to be impossible within these constraints: the Greeks could not trisect an angle, create a square with the same volume as a given circle, or double the volume of a given cube. Although a square exists with the same volume as every circle, due to the limits that the Greeks placed upon themselves, they were unable to manifest such a square. These constructions are theoretically possible but practically impossible. The Greeks decided the rules and thus defined what was considered "real." Practice and theory are never the same when it comes to matters as precise as mathematics. It is laws and preconceptions that govern human perception of what is and is not possible (Math Teacher Link).

Numbers themselves do not exist in the physical world. The number three is not a particular, as Plato observes in his classic Socratic dialogue on justice in The Republic, but a form. Forms are objective "blueprint[s]" of perfect ideas that are unchanging and particulars are objects that exist in the image of those forms (Timaeus, 28). While particulars exist in the human world as examples and representations of concepts, forms exist on a higher plane and include ideas such as "purity" and "evil." "Evil" can be considered a form, because although we think we understand what it is no one will ever be able to touch or understand it in its purest sense. A number is an example of a quantity. Although we have examples of the number three we will never experience the complete, perfect, ideal "three." Numbers belong to a "different reality" than many of the objects they describe and exist instead in the world of forms (Robinson). Although numbers may not be tangible, the concepts that they describe exist in the physical realm.

I do not think that anything is inherently real. Reality only exists in comparison to other things—my feelings are real because I feel them, but they can never be proven to actually exist. When one turns their back, the world behind them could disappear and they would not be able to tell because it is no longer in their field of vision. Reality is relative to one's state of mind and viewpoint. Instead of searching for one answer to the question of what is real I focus instead on

what feels important in the moment. If the ever-changing nature of perception means that we will never understand reality, there is no reason to search for its meaning. Although mathematics may not be considered real, the concepts that it describes exist in my personal world. I can see the relationships between calculations and music, aesthetics and proportions, and math and outer space. Without the patterns and explanations that mathematics provide I would have no sense of personal reality and nothing to put my faith in. I rely on numbers to guide my understanding because they are where I find the most truth.

I find truth and logic functioning in their purest forms in mathematical proofs. A proof implies that a problem or fact has been proven completely and unquestionably. Mathematicians often describe "more conceptual, non-visual things… typically simple [and/or] short proofs of deep [and/or] difficult result" as "elegant" (Picciotto). The beauty of these proofs is found in their simplicity and logic. Proofs are an example of a priori reasoning (Robinson), or reasoning that comes from "self-evident propositions" as opposed to observation (Merriam-Webster "A priori"). A priori logic, strangely enough, makes me happy. I love to witness what I see as truth logically evolving from a mathematical idea. To me, this type of reasoning seems perfect. Nothing is implied and every answer is the result of a fact. A priori logic is free of guessing or human interpretations and I feel that I can truly place my faith in it.

Math and science are my faith system. Although I feel that the things that I believe in are logical, I can also recognize that all data that has been collected about the world was originally based on human speculation. Concepts that we currently believe to be true are always open for further debate and could be proved false at any time. Take, for example, the heliocentric model of the universe proposed by Copernicus. Up until he proposed that the sun is the center of the universe the church enforced the idea that everything revolves around the earth (Leonard). What we consider to be true, even in the sciences, is heavily influenced by outside forces. Numbers guide my life just as a Christian may feel that God controls theirs. Until very recently I dismissed religion as something for those who are unable to cope with the idea of nothingness. I have since realized that I am also unable to believe that there is no force guiding our universe. Instead of trusting a god, I trust that proofs, theorems, and mathematical relationships will guide my life. I am also able to recognize that these relationships may have no further meaning past the fact that they exist. Pure existence is enough for me. It is a relief to be able to believe in something. Life may be without meaning but at least it has logic.

Because I view math as an inherently perfect system and also treat it as my personal faith, I am constantly confronted by themes of infinity and perfection. I know that I cannot draw a perfect circle and yet I also know that it exists in theory. This unattainable perfection haunts my every day life. If I believe so strongly in logic and reasoning then why am I unable to examine my life as such? My unnatural anxiety might be quelled by a heavy dose of a priori reasoning. It is because of my human nature that I am unable to function based on theory like mathematics does. Just inhabiting a human body makes me inherently flawed. In death I will be perfect; I will return to the mathematical universe from which I came, existing without truth and without reality. Not existing at all and, therefore, not constantly analyzing the flawed life from which I came.

Even once I have convinced myself that I have come to a conclusion, I return to certain questions: Are we perfect because math guides us or inherently flawed due to the perfection's existence only in theory? Does it really matter? Either way, we cannot change the mathematical relationships upon which the universe is built. When it comes down to it, all a human really consists of are lots of tiny particles interacting with each other. If perfection is everything or if it

is impossible, there is nothing humans can do to achieve it. The particles inside of us will do what they will. The physical nature of things is set. The Romantic inside of me wants to believe that we are perfect and emotional issues will work themselves out based on these relationships, while the depressive misanthrope thinks that we are too far from theoretical perfection for things to fall into place as I feel they should. I cannot pick a truth. There is no answer my eternal questions and there is no reality to depends on.

As with every academic field, many math problems remain unsolved. The answers to these questions exist, but only beyond the current scope of our knowledge. I find this both beautiful and terrifying. Once we find an answer will we ever really know it to be true? There is no reality and no certainty. If humans ever hit a point in the development of our race at which everything that we perceive as true is correct, we will not know it. Knowledge is relative to the circumstances. If a circle is discovered someday without a diameter of radius multiplied by pi, everything that we think we know about circles will become irrelevant. I am scared for a shift in understanding because I believe so firmly in out current mathematical system.

I am learning to put my trust in space and time because they are all there is to trust. My life is going to continue on the way that it is meant to continue, not because of the influence of a god but because of calculated relationships. My anxiety surrounding change and imperfection has defined the last three years of my life. Sometimes I feel like I am completely obsessed with myself and exist only as a narcissist. If practical applications of mathematics cannot even scratch the realm of perfection there is no reason that any one human will ever reach that point. I have begun to detest myself because, although I value logic over anything else, my overwhelming anxiety never seems to come from a logical place. If I cannot follow the concepts that I tell myself I believe in, what am I but a hypocrite? I surround myself with academic pursuits in an attempt to escape the emotional side of my being. Geometry and arithmetic created me in their image. I am ready to preach for the church of science and attempt to apply logic to my life.

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