

## **Maharishi's Vedic Mathematics: The Fulfillment of Modern Mathematics**

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Mathematics is a highly praised discipline. Carl Friedrich Gauss, the great German scientist and mathematician, held mathematics to be the “queen of the sciences.” The Pythagoreans felt that “all is number” and the ancient Greeks included arithmetic and geometry as two of the four parts of the quadrivium, the core of their educational system. Jyotish Vedanga says, “Like the crest of a peacock, like the gem on the head of a snake, so is mathematics at the head of all knowledge.”

The purpose of this paper is to show how the discipline of modern mathematics finds its fulfillment in the Vedic Mathematics of His Holiness Maharishi Mahesh Yogi and to invite every individual to gain the full benefit of Maharishi's Vedic Mathematics.

### **The Nature of Mathematics**

Mathematics is as old as civilization itself; every culture that has left written records has also left indications of mathematical activity. Mathematics is validated by reasoning and logic and is eternally true. The mathematics known to the ancients is still correct and valid today. Results stated long ago without proof, for example formulas discovered by the ancient Egyptians or given in the Sulba Sutras, have been shown to be correct later. Even the gaps in Euclid's reasoning that were first identified only toward the end of the 19th century have been filled without invalidating any of his conclusions.

Other sciences, however, are continually being reformulated and refined. It is not unusual for a scientific theory to be completely repudiated on the basis of new experimental results. Even older results that are still used today, such as Newton's Universal Law of Gravitation, are at best only approximations of reality. Mathematics, like the sciences, studies patterns and relationships, but it is the nature of the patterns and relationships studied by mathematics that sets mathematics apart from the sciences and ensures that mathematical results are enduring.

Physics describes regularities in the behavior of physical phenomena; chemistry studies how atoms and molecules interact with one another; and biology investigates the laws governing living systems. Mathematics, in contrast, has more abstract objects of study—numbers and their operations in arithmetic and algebra, geometrical shapes and their properties in geometry. Numbers, circles, and squares are not concrete physical objects the way organisms, cells, and molecules are. They are more abstract even than the unseen forces of physics, which nevertheless influence matter in a direct and measurable way. Mathematical objects are purely conceptual; Plato (Calinger, 1982, p. 65) describes them as “those absolute objects which cannot be seen otherwise than by thought.”

The procedures for doing mathematics are also very different from procedures used in the sciences, which constantly refer to physical observations and measurements. Mathematics

depends on the functioning of the researcher's mind and intellect. The French mathematician Henri Poincaré describes this special feature of mathematics (Calinger, 1982, p. 645):

[Mathematical creation] is the activity in which the human mind seems to take least from the outside world, in which it acts or seems to act only of itself and on itself, so that in studying the procedure of geometric thought we may hope to reach what is most essential in man's mind.

Mathematics thus has a unique role in the realm of human knowledge. Like the sciences, mathematics requires precision, rigor, and logic. More importantly, however, mathematics has a subjective aspect, depending as it does on the activity of the human mind and the functioning of intelligence itself.

His Holiness Maharishi Mahesh Yogi (1997, vol. 3, p. 160), the world's foremost Vedic scholar and expert in the science of consciousness, locates the seat of mathematics in the consciousness of the mathematician:

Mathematical knowledge deals directly with the functioning of the field of intelligence—consciousness. The principles of Mathematics are universally valid principles of knowledge that describe the dynamics of the field of intelligence—the functioning of the mathematician's own consciousness.

A scientist examines the physical world through the intermediate channels of the senses, scientific instruments, and measuring devices, but a mathematician is directly observing the functioning of his or her own field of intelligence. Poincaré speaks of “this feeling, this intuition of mathematical order, that makes us divine hidden harmonies and relations” (Calinger, 1982, p. 646) as essential to the process of creating, or “divining”, mathematics. In mathematics, there is no distance between the observer and the observed; the mathematician is an observer using feelings and intuition to observe the patterns and functioning of his or her own consciousness. The patterns thus located are necessarily subjective, but become objectively valid when expressed in the precise language of mathematics and systematically verified using logical proof.

Identifying the source of mathematics as the consciousness of the mathematician provides us with an explanation of what has sometimes been called “the unreasonable effectiveness of mathematics” (see Gorini, 1997). The principles of functioning of our own human intelligence are precisely the principles of functioning of nature's intelligence and these principles are captured in a pure and compact form in mathematics. Once captured, they can be applied to all areas of life. As Maharishi explains (1996, pp. 304–305):

This universality of application [of mathematics] can be traced back to the fact that all aspects of Nature and areas of life are governed by the same principles of order and intelligence that have been discovered subjectively by mathematicians by referring back to the principles of intelligence in their own consciousness.

The wealth of applications of mathematics in the sciences shows the value of mathematics, but the ultimate goal and fulfillment of mathematics must naturally be closely linked to its source, intelligence itself, independent of its applications in the sciences. We see progress towards this goal in the fundamental theorems of mathematics. These theorems

show a drive towards unification of diverse structures. For example, we can look at the fundamental theorem of arithmetic and the fundamental theorem of algebra.

The fundamental theorem of arithmetic says that every integer can be written uniquely as a product of prime integers. The fundamental theorem of algebra says that every polynomial with complex coefficients can be completely factored over the complex numbers; this theorem implies that every polynomial equation can be completely solved using complex numbers. Both of these theorems show that all objects of a particular class, integers in the case of arithmetic and polynomials in the case of algebra, can be expressed in terms of a smaller specific collection of very simple objects in the same class. These simple objects—prime numbers in the case of arithmetic and factors of the form  $(x - a)$  in the case of algebra—are capable of generating all other objects—numbers and polynomials—through the self-interacting dynamics of multiplication.

Another example, the fundamental theorem of calculus, shows how two very different processes, differentiation and integration, are in reality very closely related as opposites of each other. An example from geometry, the Pythagorean theorem, tells exactly how the lengths of the three sides of any right triangle are related to one another.

These and other fundamental theorems in mathematics have a unifying value; they show common characteristics belonging to all the diverse objects in a particular class (integers, polynomials, derivatives, or triangles). In fact, every theorem or equation in mathematics has this property of locating how objects that appear different from a superficial point of view can be related, unified, or seen to be the same. The most significant theorems of mathematics unify collections of different objects or show connections between objects that initially seem to be completely unrelated to one another. From this perspective, we see that the fulfillment of mathematics lies in the direction of finding unifying properties and relationships for a greater and greater diversity of mathematical objects. The ultimate fulfillment of mathematics is in locating the unified source of all mathematics.

### **Maharishi's Vedic Mathematics**

To understand the fulfillment of mathematics, we look to the Vedic Mathematics of His Holiness Maharishi Mahesh Yogi. Modern mathematics starts from the diversified values of intelligence and locates progressively more unified values of intelligence in the form of equations, formulas, and theorems. In contrast, Vedic Mathematics begins from the unified value of intelligence. As Maharishi (1996, p. 384) describes this difference:

It is interesting to see that modern Mathematics starts from the field of diversity and locates its source in the field of unity; whereas Vedic Mathematics remains in the state of unity and deals with the whole structure of unmanifest diversity from the state of unity; and as the basis of all diversity is unity, Vedic Mathematics has its influence on every level of diversity.

The nature of Vedic Mathematics is quite different from that of modern mathematics. The diversity of modern mathematics is upheld by the intellect, which discriminates and reasons in an objective way. Vedic Mathematics, on the other hand, depends on the subjective nature of consciousness. This is not the variable and mutable subjectivity of the senses, feelings, and emotions, but the pure subjectivity of fully alert consciousness, that unified value of awareness that is precise and orderly and recognizes only the truth. The Absolute Number,

discussed in the next section, is the experiential basis for Maharishi's Vedic Mathematics and is structured within the consciousness of the mathematician.

Maharishi characterizes Vedic Mathematics as the science of relationship. The most fundamental relationship is that between unity, pure intelligence or pure consciousness, and diversity. Maharishi identifies unity as *Samhitā*, the field of the Veda, and makes it clear that this can be directly experienced on the level of one's own awareness during the practice of the Transcendental Meditation technique. Maharishi describes diversity in terms of its three roles as the knower, the process of gaining knowledge, and the known. Thus, according to Maharishi, the seat of Vedic Mathematics is that point where diversity—the field of knower, known, and process of knowing—emerges from *Samhitā*—the completely unified field of consciousness.

This means that Vedic Mathematics maintains the integrity of the unified value of life and at the same time upholds the eternally evolving field of diversity. According to Maharishi (1996, p. 345), "Vedic Mathematics is the balancing power between two opposite qualities of its own nature—unifying and diversifying."

Modern mathematics is valuable to scientists because it provides the tools they need to express the natural laws they have observed and to make predictions from these laws. Vedic Mathematics is more fundamental, because, as Maharishi (1996, p. 355) explains, "Vedic Mathematics is the tool that structures different Laws of Nature from the holistic value of Natural Law in self-referral consciousness." Vedic Mathematics is more complete than modern mathematics. Maharishi (1996, p. 352) makes it clear that knowledge of Vedic Mathematics is of great benefit to anyone because "to really know the whole range of Vedic Mathematics amounts to knowing the entire process of creation and evolution and gaining master over Natural Law."

Maharishi (1996, p. 366) further discusses the role of Vedic Mathematics in its role of supporting the manifest universe:

Eternal absolute order available in the universe is the expression of Vedic Mathematics. Vedic Mathematics, emerging in terms of Veda, spontaneously upholds the ever-expanding universe from its basis in self-referral consciousness and thereby maintains order everywhere.

Vedic Mathematics upholds the ever-expanding universe in perfect balance within the structure of the eternal silence of pure singularity, within the structure of the *Samhitā* level of consciousness.

Vedic Mathematics is the fulfillment of modern mathematics because it is capable of unifying all the diversified threads that have been located by modern mathematics. Moreover, the fulfillment of Vedic Mathematics is available to everyone because Vedic Mathematics is structured in the consciousness of everyone, unlike modern mathematics, which is available only to those who have been highly trained. As Maharishi (1996, pp. 341–342) explains:

The cognition of Vedic Mathematics is most delightful. It is available to fully alert consciousness—*Ritam-bharā-pragyā*; it is available within the *Ātmā* of everyone, in the self-referral consciousness of everyone; it is available as the structuring dynamics

of each *Sūtra* of the Veda and Vedic Literature, particularly in the Darshan Sūtra of the Veda, and most vividly in the structuring dynamics of the Vedānt Sūtra.

This Samhitā level of self-referral consciousness is the source of thought—pure subjectivity or pure awareness—that belongs to us all. However, it is not possible to understand wholeness, the Samhitā level of reality, using logic guided by the intellect. The intellect must be transcended and pure consciousness must be gained in order to comprehend the unified wholeness of Samhitā.

Fortunately, anyone can experience pure consciousness through the practice of the Maharishi Transcendental Meditation program, a simple, natural procedure that is practiced twice a day for 15–20 minutes. With regular practice of the Transcendental Meditation technique, the Samhitā level of consciousness becomes established in one's awareness; then, one can gain the full benefit of Vedic Mathematics. Maharishi (1996, p. 366) makes it clear that this is possible for everyone:

Anyone, through Maharishi's Course on Vedic Mathematics, can identify his consciousness with this absolute level of precision and order and become custodian of Vedic Mathematics and gain the ability to actualize automation in administration—perfect administration through the support of Natural Law—administration through the Principle of Least Action.

This reality of mastery over natural law is validated by the Veda, as Maharishi (1996, pp. 365–366) affirms:

Rk Veda certifies that the individual is capable of functioning from this level of self-referral consciousness, and the individual can become controller of this level—

ब्रह्मा भवति सरथिः ।

*Brahmā bhavati sārathiḥ.*

*(Rk Veda, 1.158.6)*

### **Maharishi's Absolute Number**

To give a deeper understanding of Maharishi's Vedic Mathematics, we now consider the Absolute Number. Maharishi (1995, p. 326) identifies the need for the Absolute Number in the lack of completion of the number systems of modern mathematics:

The Mathematics of natural numbers is not competent to explain the absolute precision and order that prevails in the field of perfect management, or absolute management; that is why I had to introduce the Absolute Number and evolve the Mathematics of the Absolute Number to account for the absolute precision and absolute order that perpetually prevails in the field of perfect management—the absolute management through the agency of the absolute value of Natural Law.

Maharishi locates the Absolute Number as the starting point of Vedic Mathematics, just as numbers are the starting point of modern mathematics. The diversity of numbers in mathematics is handled by the intellect. In contrast, the Absolute Number transcends the intellect and must be experienced on its own transcendental level. As Maharishi (1996, pp. 625–626) explains:

The most important characteristic of the Absolute Number in Vedic Mathematics is that it is a meaningful living reality, not just a notion or a concept, and therefore does not depend on the intellect. It is its own reality which functions within itself and gives a structure to knowledge and its infinite organizing power, and therefore is the basis of all numbers and mathematical structures—just as the Unified Field of Natural Law is the basis of all the force and matter fields (Physics)—the common source of all the Laws of Nature.

The Absolute Number is the unified source for the diversity of numbers, and as John Price (1997, p. 174) points out, “As a basis and a catalyst for all numbers, Maharishi’s Absolute Number gives ordinary numbers a cosmic status.” It provides an expression of the connection between unity, represented by a circle, and diversity, represented by a specific number. Thus, ① is an Absolute Number. Maharishi (1996, p. 614) describes this construction:

By circling any number, the number begins to indicate that it is part and parcel of the Absolute Number—that its boundaries are unmanifest or, in spite of its boundaries, it is a continuum—it plays its part in explaining the eternal order that sustains the evolution of the universe. Its individual status has become Cosmic—as an individual it has been elected to be a ruler—the full potential of its creativity has blossomed.

The construction of the Absolute Number, according to Maharishi, brings modern mathematics to its fulfillment in Vedic Mathematics, which has the supremely practical value of removing disorder from life. This practical value is available to those practicing the Transcendental Meditation technique, described by Maharishi (1996, pp. 616–617) in this way:

It is a joy to mention here that Transcendental Meditation is the process of maintaining connectedness with the Absolute Number—the source of the creative process—and through this programme, the precision of evolution and order in the process of creation is enlivened in human awareness, and is expressed in all thought, speech, and action.

The validity of this assertion is supported by over 600 scientific research studies on the Transcendental Meditation program (see Orme-Johnson and Farrow, 1976–1995) conducted at over 200 independent research institutions in 30 countries throughout the world. These studies show holistic benefits in all fields of life—physiological, psychological, sociological, and ecological.

The supreme value of Maharishi’s Vedic Mathematics based on the Absolute Number is summarized by Maharishi (1996, pp. 633–634):

Without the support of the Absolute Number the study of modern Mathematics can never account for the total reality, which is infinite, because it proceeds in steps. This is the time for the mathematics of finite numbers, of finite steps, to peep into the reality of the Absolute, and this Absolute Number represents complete knowledge, the Veda. It is the complete disclosure of Natural Law which presents two worlds of wholeness: 1) the unmanifest world of the Absolute Number, and 2) the manifest world of the finite numbers, which has now been raised to the unmanifest wholeness under the influence of the Absolute Number.

## Conclusion

In this brief introduction to Maharishi Vedic Mathematics, we have seen how modern mathematics, based on the intellect, is fulfilled by Vedic Mathematics, which is the structuring dynamics of Natural Law, the mathematics of consciousness. The Absolute Number, discovered by Maharishi, is a reality available at the Saṁhitā level of everyone's consciousness and offers fulfillment to modern mathematics. Vedic Mathematics and the Absolute Number can be lived by anyone through the Maharishi Transcendental Meditation program and will guide human life to be mistake-free, evolutionary, and eternally fulfilling.

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