

PHILOSOPHICAL VALUES IN THE NUMBER THEORY OF IKHWĀN AL-ŞAFĀ'

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Abstract

In mathematics, especially Arithmetic, there is a theory of numbers that can represent philosophical values. Mathematics is often presented with materialist values without deep meaning. One group of classical philosophers with mathematical thoughts, especially number theory, which explains the number material itself and relates it to meaningful philosophical values, is Ikhwān al-Şafā'. This research aims to reveal the philosophical values contained in the thought of the number. Using a qualitative research method based on a literature study approach, the researcher specifically examines the phenomenal book Rasā'il Ikhwān al-Şafā' as a primary source as well as other relevant references as secondary sources. The study found that in the number theory of Ikhwān al-Şafā', there are philosophical values such as monotheism described by the characteristics of the number one and the value of creation described by the sequence of the number ladder. This research initiates a discourse on the philosophy of numbers that previously has never been studied for it will serve as a pioneer for further research.

Keywords: *Ikhwān al-Şafā'; The Number Theory; Philosophical Values; Value of Monotheism; Value of Creation*

Abstrak

Di dalam matematika, khususnya bagian Aritmatika, terdapat teori bilangan yang bisa merepresentasikan nilai-nilai filosofis. Matematika seringkali disuguhkan dengan nilai materialis tanpa makna mendalam. Salah satu kelompok filsuf klasik yang memiliki pemikiran matematika, khususnya teori bilangan, yang tidak hanya menjelaskan materi bilangan itu sendiri, tetapi juga mengkaitkan dengan nilai-nilai

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filosofis yang penuh makna adalah Ikhwān al-Şafā'. Penelitian ini bertujuan untuk mengungkap nilai-nilai filosofis yang terkandung di dalam pemikiran bilangan tersebut. Dengan metode penelitian kualitatif berdasarkan pendekatan studi kepustakaan, peneliti mengkaji khusus kitab fenomenal Rasā'il Ikhwān al-Şafā' sebagai sumber primernya, kemudian dilengkapi dengan sumber-sumber sekundernya. Peneliti menemukan bahwa di dalam teori bilangan Ikhwān al-Şafā', terdapat nilai-nilai filosofis seperti nilai tauhid yang digambarkan oleh karakteristik bilangan satu dan nilai penciptaan yang digambarkan oleh urutan tangga bilangan. Penelitian ini mengawali diskursus mengenai filsafat bilangan yang belum pernah diteliti sebelumnya, sehingga akan menjadi pionir untuk penelitian-penelitian selanjutnya.

Kata Kunci: *Bilangan, Ikhwān al-Şafā', Nilai-nilai Filosofis, Nilai Penciptaan, Nilai Tauhid*

مستخلص

البحث في الرياضيات، وخاصة في الحساب، يكشف عن نظرية الأعداد التي يمكن أن تمثل القيم الفلسفية. غالباً ما تُقدّم الرياضيات بقيم مادية بدون معاني عميقة. إحدى المجموعات الفلسفية الكلاسيكية التي تميزت بالتفكير الرياضي، وخاصة في نظرية الأعداد، والتي تشرح المادة العددية بحد ذاتها وتربطها بالقيم الفلسفية ذات المعاني، هي جماعة إخوان الصفا. يهدف هذا البحث إلى الكشف عن القيم الفلسفية الموجودة في فكر العدد لدى جماعة إخوان الصفا. باستخدام منهج بحثي نوعي يعتمد على دراسة الأدبيات، قام الباحث بفحص كتاب رسائل إخوان الصفا باعتباره المصدر الأساسي وكذلك المراجع ذات الصلة كمصادر ثانوية. وقد خلص البحث إلى أن في نظرية الأعداد لدى إخوان الصفا، هناك قيم فلسفية مثل التوحيد التي تمثلها خصائص الرقم الواحد وقيمة الخلق التي يصفها تسلسل السلم العددي. هذا البحث يطلق خطاباً حول فلسفة الأعداد لم يسبق دراسته، وسيكون بمثابة بحث رائد لأبحاث مستقبلية.

الكلمات الرئيسية: إخوان الصفا، نظرية الأعداد، القيم الفلسفية، قيمة التوحيد، قيمة الخلق.

A. Introduction

For classical thinkers, mathematics was considered a very important and great science. They have expressed various expressions about the greatness of mathematics. One of them is Pythagoras, who is known as a famous mathematical figure, and the Pythagorean formula continues to be studied up to today. Pythagoras believed that the elements making up the universe are mathematical numbers. According to him, it is the reality of numbers that surrounds life, because numbers are the source and root that can explain everything.¹ Isidore also suggests; take everything from its number, and everything will perish.² Further, Annemarie Schimmel states that numbers constitute the building blocks of everything in the universe. Without numbers, everything in this universe would not exist because its constituents do not exist. On the other hand, Annemarie also adds that numbers contain keys

¹ Arturo Sangalli, *A Mathematical Mystery: Pythagoras' Revenge* (New Jersey: Princeton University Press, 2009), xiii–xiv.

² Annemarie Schimmel, *The Mystery of Numbers* (Oxford: Oxford University Press, 1993), 19.

that can reveal this universe's mysteries.³ Plato also considered that mathematics is a science that should be prioritized to be studied before studying others. Hence, motto 'Medeist Ageometretos Eisito' (those who have not studied mathematics, are prohibited from entering) in front of the gate of the college he established in Athens, the Academia College.⁴ All the greatness expressed by the thinkers above is due to the philosophical values contained in mathematics, especially the science of numbers which is the main part of mathematics.

Nowadays, mathematics has begun to lose its philosophical values and has only become part of modern science which puts forward a mechanistic and materialistic empirical mindset, without maintaining its philosophical values; such as spirituality and sacredness.⁵ The spirituality of modern science has dimmed and been destroyed, all that remains is a dryness of values resulting in empiricist, positivist and materialist principles.

In the contemporary era, mathematics is studied and known only as a materialist science that only contains numbers and formulas in which no discussion of philosophical values. Long before the contemporary era, Islamic scientists discussed mathematics with full philosophical or theological value, so that mathematics seems alive and meaningful, not only meaningful for science, but also meaningful for the spirituality and sacredness of humans who studied it. In the 10th century, there were group of philosophers who greatly elevated the position of mathematics, namely the Ikhwān al-Şafā'. Because they highly glorify mathematics, this group makes numbers the basis of all its thought concepts contained in the work of Rasā'il Ikhwān al-Şafā', which includes its theology, sociology, ontology and cosmology. This work has a special position in the history of Islamic thought and has had a great influence on leading Muslim intellectuals.⁶ Thoughts on numbers is at the heart of this masterpiece, so that Ikhwān al-Şafā'"s thinking about number science takes the first place.

The study of Ikhwān al-Şafā' numbers is quite rare, even though many of its philosophical values are relevant to be used as a solution to contemporary problems, one of which is a solution to the current crisis of materialist mathematics, without elaborating on philosophical values that can increase the spirituality of humans who study mathematics. Most researchers merely discuss Ikhwān al-Şafā'"s thoughts in other fields such as cosmology (Darraz, 2012) (Lestari, 2020) (Ibmar, 2017), the relationship between science and religion

³ Schimmel, 16.

⁴ Kees Bertens, *Sejarah Filsafat Yunani Dari Thales Ke Aristoteles* (Yogyakarta: Kanisius, 2006), 118.

⁵ Husain Heriyanto, *Menggali Nalar Saintifik Peradaban Islam* (Bandung: Mizan, 2011), 240–41.

⁶ Seyyed Hossein Nasr and Mehdi Aminrazavi, eds., *An Anthology of Philosophy in Persia, Vol. 4: From the School of Illumination to Philosophical Mysticism* (New York: I.B. Tauris, 2008), 208–9.

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(Humaidi, 2018) (Ivani, 2020), education (Arrovia, 2021), art (Kydar, 2018), politic (Ghossein, 2023), metaphysics (Ozkan, 2022), and hermeneutics (Ghadiali, 2023).

In this study, researchers used a qualitative research methodology based on literature studies that produced descriptive, qualitative, and analytical data from Ikhwān al-Şafā's number theory. The sources of literature data used by researchers are primary sources in the form of direct books from Ikhwān al-Şafā', namely the book *Rasā'il Ikhwān al-Şafā'* and *Risālat al-Jāmi'ah*, then secondary sources are taken from various articles and books with the relevant theme. In analyzing the theory, the researcher found that two philosophical values can be absorbed or taken from Ikhwān al-Şafā's number theory.

This research article is written with the following writing organization: First, the researcher describes the identity of Ikhwān al-Şafā' for the introduction of the main characters in this study. Second, the researcher describes and analyzes the philosophical values, namely the value of tawhid contained in Ikhwān al-Şafā's number theory. Third, the researcher analyzes philosophical values such as the value of creation in Ikhwān al-Şafā's number theory.

B. Discussion

1. *Biography of Ikhwān al-Şafā'*

The identity of the Ikhwān al-Şafā' is controversial and mysterious, but their phenomenal work *Rasā'il Ikhwān al-Şafā'* is clearly visible in four volumes. In fact, there is no clear evidence of their identity in their works. Who are they? Some say that the Ikhwān al-Şafā' is a group of thinkers consisting of many people, but there are also researchers who say that even though it consists of many people, the *Rasā'il's work* is written by only one person. Did this one person write all the chapters or did they only have the authority to supervise their writing? Internal evidence does not clearly explain this.⁷

The issue of Ikhwān al-Şafā' has never been free from controversy. Regarding the name Ikhwān al-Şafā', it is full of controversy with various translations in English, German and French. Starting from *the Brethren of Purity*⁸, *The Pure Brethren*⁹, *Sincere Brethren*¹⁰, *Sincere*

⁷ Godefroid de Callatay, *Ikhwān Al-Şafā': A Brotherhood of Idealists on the Fringe of Orthodox Islam* (London: One World Publications, 2005), 3.

⁸ R. A. Nicholson, *A Literary History of the Arabs* (Cambridge: Cambridge University Press, 1969), 370; Montgomery Watt, *Islamic Surveys 1: Islamic Philosophy and Theology* (Edinburgh: Edinburgh University Press, 1962), 102; Majid Fakhry, *A History of Islamic Philosophy* (New York: Columbia University Press, 1970), 185–202.

⁹ H. A. R. Gibb, *Arabic Literature* (Oxford: Clarendon Press, 1963), 99; Gustave E. von Grunebaum, *Medieval Islam: A Study in Cultural Orientation* (Chicago: University of Chicago Press, 1946), 317.

¹⁰ Watt, *Islamic Surveys 1: Islamic Philosophy and Theology*, 102.

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*Friends*¹¹ in the English version, *die Lauteren Bruder, die treuen Freunde, and die aufrichtigen Bruder und treuen Freunde* in the German version, *les Freres de la Purete* in the French version.¹²

A researcher named Ola Abdelaziz Abouzeid from Toronto revealed several theories of the group that wrote *Rasā'il's phenomenal work*, namely the theory of the Sufis, the theory of the Mu'tazilah Theologians, the theory of al-Majriti, the theory of the Isma'iliyyah Imams, and the theory of the Basrah Intellectuals of the century to 4.¹³

First, Sufi theory states that those who wrote the *Rasā'il* works or books were Sufis. Of which Sufi theory is expressed by Al-Din al-Safadi.¹⁴ Scholars and academics who support this theory are al-Alusi al-Baghdadi, Seyyed Hossein Nasr, Abdul Latief Tibawi, and Ian Richard Netton.

Al-Alusi al-Baghdadi is one of the traditional scholars who stated that *Rasā'il* was the work of Sufis who adopted Shiite traditions.¹⁵ Meanwhile, Seyyed Hossein Nasr stated that thinkers who are members of the Ikhwān al-Ṣafā' group describe themselves as a group that upholds spirituality and Sufism. The word Ṣafā itself in the name Ikhwān al-Ṣafā' shows the meaning of the clarity of the human heart which can create gnostic knowledge (*ma'rifah*) into something possible.¹⁶ On the other side, Nasr stated that the Ikhwān al-Ṣafā' thinkers is a group of Sufis. Meanwhile, Abdul Latief Tibawi stated that the name Ikhwān al-Ṣafā' is formed to imitate the Sufi tradition which intensively uses the word Ṣafā'. Then, Ian Richard Netton also stated that they were related to the Sufism movement.¹⁷

¹¹ Grunebaum, *Medieval Islam: A Study in Cultural Orientation*, 40.

¹² Ian Richard Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity* (Edinburgh: Edinburgh University Press, 1993), 6.

¹³ Ola Abdelaziz Abouzeid, *A Comparative Study between the Political Theories of Al-Farabi and The Brethren of Purity* (Toronto: University of Toronto Press, 1987), 212; Abbas Hamdani, "Shades of Shi'ism in the Tracts of the Brethren of Purity," in *Traditions in Contact and Change*, ed. Peter Slater et al. (the 14th Congress of the International Association for the History of Religions, University of Chicago Press, n.d.), 448. Ali ibn Abi Talib, Jabir ibn Hayyan, and al-Hallaj stated by al-Din al-Safadi in his work entitled *al-Wafi bi al-Wafayat*. Ja'far Sadiq was stated by Ibn Taymiyyah in his work entitled *Mukhtashar Fatawa ibn Taymiyyah*. Mu'tazilah theologians were stated by al-Qifti in his work entitled *Tarikh al-Hukama*. Imam Isma'ili was stated by preacher Abu al-Ma'ali Hatim ibn Zuhrah in his work entitled *Risalat al-Usul wa al-Ahkam*. Nusairis was stated by Taqiy al-Din Abu al-'Abbas Ahmad ibn 'Abd al-Halim ibn 'Abd al-Salam ibn Taymiyyah in his work entitled *Majmu' Rasa'il*. Nusairis is rarely discussed. The intellectuals of Basrah in the 4th century H. were stated by Abu Hayyan al-Tawhidi in his work entitled *al-Imta' wa al-Mu'anasah*. This is the report of his conversation with ibn Sa'dan. Al-Majriti was stated by Ibn Hajar al-'Asqalani and al-Safar in his work entitled *'Aqidat al-Safarini*. Al-Ghazali is stated by Ibn Sab'in in Abbas Hamdani.

¹⁴ Abouzeid, *A Comparative Study between the Political Theories of Al-Farabi and The Brethren of Purity*, 212–13.

¹⁵ Abouzeid, 213.

¹⁶ Seyyed Hossein Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for Its Study by the Ikhwan al-Safa, al-Biruni, and Ibn Sina* (Massachusetts: The Belknap Press, 1964), 30–31.

¹⁷ Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity*, 5.

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Second, the theory of the Mu'tazilah theologians which states that it was the Mu'tazilah theologians who wrote the *Rasā'il*. This theory is put forward by al-Qifti (d. 646 H). He stated that *Rasā'il* is the work of early Mu'tazilah theologians.¹⁸ Some several scholars and academics agree with this theory, including; EG Browne, Umar Faroukh, Adil 'Awa, and Ian Richard Netton. However, some refuse it, including; SM Stern and Seyyed Hossein Nasr.

EG Browne stated that the Ikhwān al-Şafā' had a rational tendency, so it was attributed to the Mu'tazilah group.¹⁹ Then, Ian Richard Netton stated that the term *people of justice* is used equally by the Ikhwān al-Şafā' and the Mu'tazilah. Thus, the influence from Mu'tazilah teachings is obvious.²⁰

Third, the Isma'iliyyah theory which states that those who wrote *Rasā'il* are the descendants of the Isma'iliyyah Shiites. This theory was put forward by Abu al-Ma'ali Hatim ibn Zuhrah. Some several scholars and academics support this theory, among others; al-Qifti, Nur al-Din Ahmad, and Idris 'Imad al-Din. Abu al-Ma'ali Hatim ibn Zuhrah stated that *Rasā'il* was written by some Isma'iliyyah preachers, such as 'Abd Allah bin Mubarak, 'Abd Allah bin Hamdan, 'Abd Allah bin Maymun, 'Abd Allah bin Sa' id bin al-Husayn, imam Muhammad ibn Isma'il, and imam Abdullah bin Muhammad.²¹ Then Nur al-Din Ahmad who stated that *Rasā'il* was written by hidden imams, named 'Abdullah ibn Muhammad at the time of al-Ma'mun.²²

Fourth, the theory of the Basrah intellectual group of the 4th century H or 10 AD which states that it was the Basrah intellectual group who wrote *Rasā'il*. This theory was put forward by Abu Hayyan al-Tawhidi. Some several scholars and academics support this theory, namely al-Baihaqi, al-Qifti, Syams al-Din Muhammad bin Mahmud al-Shahrazuri, and Flugel. Al-Tawhidi explained that the names involved in writing *the Rasā'il* were Abu Sulayman Muhammad ibn Ma'shar al-Bisti,²³ Abu al-Hasan 'Ali ibn Harun al-Zanjāni, Abu Ahmad al-Mihrajani, and al-'Awfi.²⁴

Al-Baihaqi stated that the author of *the Rasā'il* was the same as stated by al-Tawhidi but added by Zayd ibn Rifā'ah. Netton discovered a 19th-century German scholar named

¹⁸ Muhammad Abdullah Darraz, "Kosmologi Ikhwan Al-Shafa," *Afkaruna* 10, no. 1 (2014): 68–95, <https://doi.org/10.18196/aiijis.2014.0032.68-95>.

¹⁹ E.G. Browne, *A Literary History of Persia*, vol. 1 (London: T. Fisher Unwin, 1902), 292.

²⁰ Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity*, 5.

²¹ S. M. Stern, *Studies in Early Ismā'īlism (Jerusalem: The Magnes Press (Jerusalem: The Magnes Press, 1983), 166–68.*

²² Darraz, "Kosmologi Ikhwan Al-Shafa."

²³ In Majid Fakhry's book, this name is Abu Sulaiman Al-Basti alias al-Maqdisi. Al-Maqdisi was the spokesperson and the person responsible for writing and summarizing all the views in *the Rasā'il*. Majid Fakhry, *A Short Introduction to Islamic Philosophy, Theology, and Mysticism* (London: One World Publications, 1997), 55.

²⁴ Abu Hayyan Tawhidi, *Al-Imtā' Wa al-Mu'ānasah*, vol. 4 (Cairo: Lajnah al-Ta'lif wa al-Tarjamah wa al-Nasyr, 1942), 4.

Flugel who believed that the Ikhwān al-Ṣafā' consisted of five thinkers who formed a secret association in Basrah and published *the Rasā'il*. This concept is similar to an early Muslim source, al-Tawhidi.²⁵ Meanwhile, other theories stating that the writing of *the Rasā'il* was done by only one person, such as al-Majriti, 'Ali, Ja'far al-Sādiq, Jābir ibn Hayyan, have little evidence.²⁶

Researchers are more inclined towards the theory which states that the writing of *Rasā'il* was carried out by Sufis as well as the theory which states that the writing of *Rasā'il* was carried out by a group of Basrah intellectuals in the 4th century AH or 10 AD compared to other theories. First, the Sufi theory is evidently found in the book *Rasā'il Ikhwān al-Ṣafā'* itself. In the beginning, it was described that the Ikhwān al-Ṣafā' called themselves a pure Sufi group (*al-Khulas ā' al- ṣufiyyah*).²⁷ Then they defined themselves as divine philosophers (*al-Ḥukamā' al-rabbāniyyīn*) who understood Sufistic teachings and scholars who were experts in philosophy (*al-'Ulamā' al-mutafalsafīn*).²⁸

The idea of numbers²⁹ which is put forward by Ikhwān al-Ṣafā' is the foundation of all his thoughts in the book *Rasā'il*. Number thought according to Ikhwān al-Ṣafā' is an example of thinking that can describe a higher world or abstract world. In other words, by thinking about numbers, someone can imagine the world or a higher science, namely metaphysics. Humans can understand metaphysics through mathematics, especially numbers which are the mediators. So, it can be said that the science of numbers is the root of all knowledge because it is the basis and source of knowledge.³⁰ When someone understands the science of numbers, it will be easier for them to understand other sciences because the science of numbers is a guide to other sciences, such as physics and metaphysics. By understanding the science of numbers, we will discover philosophical values that can lead us to an understanding of monotheism and an understanding of creation.

2. The Value of Tawheed in the Number Theory of Ikhwān al-Ṣafā'

²⁵ Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity*, 3; Tawhidi, *Al-Imtā' Wa al-Mu'ānasah*, 4:2; Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for Its Study by the Ikhwan al-Safa, al-Biruni, and Ibn Sina*, 25.

²⁶ Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity*, 3.

²⁷ Ikhwān Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, vol. 1 (Beirut: Dar al-Shadir, 1957), 21.

²⁸ Ikhwān Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, vol. 3 (Beirut: Dar al-Shadir, 1957), 345.

²⁹ Numbers are included in *ma'qūlat tsānī falsafī* (secondary concepts of philosophy) whose reality we cannot directly sense, but can be grasped by reason through relationships, such as the number 2 which is connected to 2 chairs. Without the chair object, the number 2 cannot be understood by reason. Numbers exist because they have reality, but their reality cannot be sensed directly. So numbers have ontological reality. Mohsen Gharawiyān, *Pengantar Memahami Buku Daras Filsafat Islam* (Jakarta: Sadra Press, 2012), 62.

³⁰ Ikhwān Ṣafā', *Risālat Al-Jāmi'ah* (Damascus: Al-Taraqqi Press, n.d.), 9.

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In his thoughts about numbers in his main book, Ikhwān al-Şafā' states that the number 1 is simple (*basīth*) because it has no parts and cannot be divided.³¹ The number 1 can be viewed from two sides, namely the essential side and the majazi side. The number 1 in essence is the number 1 which cannot be divided and has no parts. And everything that cannot be divided is that the one which has no parts.³² It is itself without relying on anything else. So, 1 is 1 itself without being divided by other numbers. And 1 also has no part in other numbers. The number 1 here is *basīth*, simple. By understanding the thoughts regarding the number 1, we will gain an understanding of the oneness of God. So, in thinking about number 1 Ikhwān al-Şafā', there is a philosophical value of monotheism that can be drawn. Pythagoreans such as Laertius and Iamblichus said that thinking about numbers and their characteristics could explain the entire process of creation.³³ In his book, Ikhwān al-Şafā' says:³⁴

Pythagoras said: Indeed in the knowledge of numbers, as well as the emergence of numbers from the number one before the number two, there is knowledge of the oneness of the Almighty and Almighty God. Whereas in the knowledge of the specific characteristics of number, order, and order, there is knowledge of all the entities (entities) of God's creatures as well as knowledge of their creation, order, and hierarchy.

God's existence is likened to a simple number 1 (*basīth*), which has no parts and cannot be divided. God's oneness is absolute or essential just like the number 1 which is essential, undivided, and nothing resembles it. God is clearly unique in various aspects and meanings. There is nothing like the oneness and singularity of God.³⁵

Meanwhile, the number 1, which is viewed *majazily*, is a unity or unit, such as ten units, one hundred units, one thousand units. Form 1 is 1 with its unity just as black is black with its blackness. Unity here is the property of 1, such as blackness is the property of black.³⁶ For this reason, oneness is the nature of the oneness of God which is seen as *majazi*.

Al-Farabī said that God is the first being that cannot be divided and there is nothing like Him.³⁷ Meanwhile, Ibn Sīna said that God has a *basīth form*, is not composed, does not have genus and differentiation, is not composed of matter and form, and does not depend on

³¹ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 1:49.

³² Şafā', 1:49.

³³ Netton, *Muslim Neoplatonists: An Introduction to the Thought of the Brethren of Purity*, 9.

³⁴ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 3:200.

اعلم يا أخي، أيدك الله و إيانا بروح منه، أن فيثاغورس كان رجلا حكيما موخدا من أهل حران. و كان شديد العناية بالنظر في علم العدد و كيفية نشوئه، كثير البحث عنه و عن خواصه و مراتبه و نظامه، و كان يقول: إن في معرفة العدد، و كيفية نشوئه من الواحد الذي قبل الاثنين، معرفة وحدانية الله، عزّ و جل؛ و في معرفة خواص الأعداد، و كيفية ترتيبها و نظامها، معرفة موجودات الباري تعالى، و علم مخترعاته و كيفية نظامها و ترتيبها؛ و إن علم العدد مركز في النفس يحتاج إلى أدنى تأمل و يسير من التذكار حتى يستبين و يعرف بلا دليل

³⁵ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 1:251; Ikhwān Şafā', *Rasā'il Ikhwan al-Şafā'*, vol. 2 (Beirut: Dar al-Shadir, 1957), 471; Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 3:179, 201.

³⁶ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 1:49.

³⁷ Farabi, *Mabādi' Ārā' Ahl al-Madīnah al-Fadhīlah* (Oxford: Oxford University Press, 1985), 66–69.

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any other being besides Himself. So, it is called *Wājib al-Wujūd*.³⁸ Annemarie Schimmel stated that nature was created by God. God is also said to be 1 as a symbol of the primordial 1, no one or nothing resembles Him, a being having no opposite. The number 1 is composed of connection, wholeness, and oneness, and rests on itself but is behind all beings.³⁹ God is analogous to the essential number 1 which has no parts and cannot be divided. Then the 17th-century Catholic mystic Angelus Silesius wrote, “Just because unity exists in every number, the One God is everywhere in everything.”⁴⁰

In the number thinking of *Ikhwān al-Ṣafā'*, the number 1 is likened to God. The number 1 gives itself to other numbers as God gives His existence to the entire entities in the universe. The number 1 is eternal for God is eternal. Then, the number 1 covers other numbers as God covers other beings in nature.⁴¹ The number 1 spreads everywhere and covers other numbers because all numbers basically come from the number 1. Thus, it can be said that the plurality of numbers comes from the unit number 1 as depicted below:

$$\begin{aligned} 1 &= 1 \\ 2 &= 1 + 1 \\ 3 &= 1 + 1 + 1 \\ 4 &= 1 + 1 + 1 + 1 \\ 5 &= 1 + 1 + 1 + 1 + 1 \\ &\text{Etc} \end{aligned}$$

In the theory of gradation of being (*Tashkīk al-wujūd*), 'Allāmah Muhammad Husayn Thabāthabā'ī said:

*As for the nature of gradation, it is clear that there are different essences where the differences are not outside of a single essence, such as strong (al-shiddah) and weak (al-ḍo'f), beginning and end, potentiality (al-quwwah) and actuality (al-fi'l), and others. So that the single, graded essence exists in the substance itself. Diversity returns to singleness and singleness flows back into diversity. This is what is called gradation (tashkīk)."*⁴²

It could be said that the form is only 1, but graded from top to bottom. There are strong and there are weak. There is a beginning and there is an end. They all have different intensities. There is only 1 form, apart from that it is only the manifestation which has different intensities. As the number 1 is essential, while the other numbers are just

³⁸ Ibn Sina, *Al-Najāh Fi al-Hikmah al-Manthiqiyyah Wa al-Thabī'iyah, Wa al-Ilāhiyyah* (Beirut: Dār al-Āfāq al-Jadīdah, 1985), 264.

³⁹ Schimmel, *The Mystery of Numbers*, 42.

⁴⁰ Schimmel, 45.

⁴¹ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 3:181.

⁴² Muhammad Husayn Tabatabai, *Bidāyat Al-Hikmah* (Qum: Muassasah al-Ma'arfi al-Islamiyah, n.d.), 19–20.

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manifestations or *tajallī* of the number 1. Then, the plurality of numbers comes from the unity of the number 1. And the number 1 flows within the plurality of numbers, because if we take the example below:

$$\begin{aligned}2 &= 1+1 \\3 &= 2 (1+1) +1 \\4 &= 3 (1+1+1) +1 \\5 &= 4 (1+1+1+1) +1\end{aligned}$$

We can see that the number 1 flows into the numbers 2, 3, 4, 5, and so on, just as the form of God flows in all the forms of His creation. Mullā Sadrā in his book states:

My God has given me guidance to the straight path through burhān nūr al-'arshi that it exists and existence has a single essence (al-wahdat al-shakhshiyah) there is no duality (sharik) in its existence which is essential. There is no duality (tsāni) in its essence ('ainī). On the stretch of existence (dar al-wujūd) there are levels (diyāh). Everything that appears in the realm of existence is not al-wājib al-ma'būd but all of it is the mazhahir of its essence and the tajalli of its nature which in fact (the mazhāhir and tajallī) is the essence of its essence as well, as explained from the statement of some 'urafā.⁴³

Besides the theory of *tashkīk al-wujūd*, there is the theory of *wahdāt al-wujūd* Ibn 'Arabī.⁴⁴ In this theory, God reveals Himself to nature through His presence in everything in nature. So, everything in nature or everything other than God is the incarnation of God.⁴⁵ God manifests Himself to all the plurality in nature to the concrete, causing nature to actually exist.⁴⁶ Ibn 'Arabī said:

God has manifested the entire world like a ready body in which there is no spirit, and so it is like a blurred mirror. This is nothing other than the realization of the readiness of form, it has been prepared to receive the emanation of continuous self-unfoldment (tajallī), which has not ceased and will never cease. There is nothing but the recipient, out of His most holy emanation. Everything, from the first to the last, came out of Him.⁴⁷

⁴³ Sadruddin Muhammad Shirazi, *Al-Hikmah al-Muta'aliyah Fī al-Asfār al-'Aqliyyah al-Arba'ah*, vol. 1 (Beirut: Dari al-Ihya al-Turath al-'Arabi, 2002), 292.

⁴⁴ Ibn 'Arabī is known as the first originator of the doctrine of *wahdāt al-wujūd*. However, this expression is not found in his works. In fact, works that specifically present his point of view are mostly not because of the content of his writings, but because of the attention of his followers and the direction of Islamic thought that developed after him. Ibn 'Arabī often made statements along these lines, and we would certainly feel justified in claiming that he supported the idea of *wahdat al-wujud* in its literal sense. Khairul Fuad et al., "IBN ARABI'S CREATIVE IMAGINATION IN ODHY POETRY OF SUFISM FIGURES IN HIS ANTHOLOGY RAHASIA SANG GURU SUFI," *Jurnal Ilmiah Islam Futura* 23, no. 2 (September 20, 2023): 360, <https://doi.org/10.22373/jiif.v23i2.15291>; William Chittick, *Imaginal Worlds, Ibn 'Arabi and the Problem of Religious Diversity* (New York: SUNY Press, 1994), 15.

⁴⁵ Toshihiko Izutsu, *Sufism and Taoism: A Comparative Study of Key Philosophical Concepts* (Berkeley: University of California Press, 1984), 152.

⁴⁶ Izutsu, 156.

⁴⁷ Ibn Arabi, *The Ringstone of Wisdom (Fuṣūṣ al-Ḥikam)* (Chicago: Great Books of the Islamic World, 2004), 4-5.

There is a unity of form which implies that what exists and can be seen is only form. We see nothing else but form.⁴⁸ Being is a single reality. What we see in nature is *maya* (*majāzi*), not the essence. What we see is not nature, but existence itself, namely God as the Visible (*dzāhir*) showing Himself in a place of manifestation (*locus of manifestation/mazhha*), namely in nature itself.⁴⁹

Number 1 is the source of all numbers after it, such as numbers 2, 3, 4, 5, 6, 7, 8, 9, and so on. The plurality of numbers comes from the unity of the number 1. Just like the number, the existence of God is also the source of the existence in the whole world. The existences in nature that are plural come from the One God (unity).

3. The Value of Creation in Ikhwān al-Ṣafā' Number Theory

The relationship between God and nature is like the relationship between the number 1 and other numbers because God created nature and God covers all of nature, like the number 1 which is the source of other numbers and includes all numbers. In the process of creation, the Ikhwān al-Ṣafā' number theory also has the same method as God in creating. So in number theory philosophical values can be drawn which are full of the values of creation and manifestation.

The manifestation of numbers is closely related to the manifestation of forms in the emanation process or also called the manifestation of creation. The theory of emanation is a theory about the process of formation or creation of substances from God, as *mandatory al-wujūd*. The emanation theory is a theory that states that the universe exists as a result of causes, and that cause is the Most Perfect God.⁵⁰ Meanwhile, according to al-Farabī, the theory of emanation is a theory that discusses the long process of creating nature.⁵¹ From the emanation of creation, it can be seen that the creation of nature was not a waste and coincidence because it was specifically designed, systematic and gradual.

The theory of emanation conceived by Ikhwān al-Ṣafā' was inspired by Plotinus' theory of emanation. Ikhwān al-Ṣafā' took Plotinus' scheme without changing it, unlike other Neoplatonists such as Lamblichus who developed Plotinus' theory of emanation to include many levels of reality. Meanwhile, the Ikhwān al-Ṣafā' continues to imitate the theory of

⁴⁸ Chittick, *Imaginal Worlds, Ibn 'Arabi and the Problem of Religious Diversity*, 16.

⁴⁹ Chittick, 17.

⁵⁰ Humaidi, *Paradigma Sains Integratif Alfarabi: Pendasaran Filosofis Bagi Relasi Sains, Filsafat, Dan Agama* (Jakarta: Sadra Press, 2015), 132.

⁵¹ Majid Fakhry, *Al-Farabi: Founder of Islamic Neoplatonism: His Life, Works and Influence* (Oxford: One World Publications, 2002), 28.

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emanation with 9 fundamental units such as those in number theory.⁵² The theory of emanation of the Ikhwān al-Şafā' is explained in treatise 32 with the title " *Pythagorean principles of the existence of reason* " and treatise 49 entitled " *modalities of statement of non-material existence* ".

In emanation, creation comes from the One God what's so called the first principle. The first substance that God created was a form that was simple, spiritual, very perfect, and was the form of all the objects it contained. This substance is called universal active reason. From the substance of reason, it continues to the second hierarchy called the universal soul (*al-nafs al-kullīyah*). From the universal soul, it continues to other substances below the soul which are called the first matter. Then, it is transformed into the body or absolute body, namely the second material which has length, width and depth.⁵³



God creates plurality in nature in stages, just as the number 1 forms a plurality of numbers in a numerical ladder. The number 1 creates the number 2, then creates the number 3, then creates the number 4, and so forth. The structural order of natural creation through emanation is in accordance with the structural order of numbers in the number ladder

⁵² Callatay, *Ikhwān Al-Şafā': A Brotherhood of Idealists on the Fringe of Orthodox Islam*, 18.

⁵³ "The first thing which the Creator produced and called into existence is a simple, spiritual, extremely perfect and excellent substance in which the form of all things is contained. This substance is called the intellect. From this substance there proceeds a second one which in hierarchy is below the first and which is called the Universal Soul (*al-nafs al-kullīyah*). From the Universal Soul proceeds another substance which is below the Soul and which is called Original Matter. The latter is transformed into the Absolutely Body, that is, into Secondary Matter which has length, width, and depth." Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for Its Study by the Ikhwan al-Safa, al-Biruni, and Ibn Sina*, 52.

sequence. The first plurality is the number two, then three, four, five, and so on indefinitely.⁵⁴

Ikhwān al-Ṣafā' states:

*God created the first thing from the light of His oneness, a basīth substance called active intellect, such as the repeated emergence of the number 2 from the number 1. Then, the emergence of the universal soul falakīyyah from the light of reason is like the emergence of the number 3 from the addition of the numbers 1 and 2. Then the first material appears from the movement of the soul, such as the emergence of the number 4 from the addition of the numbers 1 and 3. Then the emergence of all creation from matter through the mind and soul, such as the emergence of all the numbers from the number 4 which are connected to the previous numbers.*⁵⁵

Plurality and multiplicity arise from the number one, namely by adding 1 and 1 respectively.⁵⁶ The number 1 added to the number 1 produces the number 2. The number 2 added to the number 1 produces the number 3. The number 3 added to the number 1 produces the number 4, and so forth. As a result, an unlimited plurality of numbers is formed, just as the plurality of this universe is unlimited. The number 1 which is located before the number 2 is the origin of all numbers and is a beginning. All numbers, whether whole or fractional, arise from the number 1. The number 1 is where the whole number returns.⁵⁷ So, it is said that the real number 1 is a synonym for the term "something" (*thing, shay'*) which is the most general term and cannot be divided.⁵⁸

1	= God
2 (1 + 1)	= Universal Active Intellect
3 (2 + 1)	= Universal Soul
4 (3 + 1)	= First Material
5 (4 + 1)	= Body or Body (Second Matter)

The relationship of God with nature is like the relationship of number 1. The relationship of Universal Intelligence with nature is like the relationship of number 2. The relationship of the Soul with nature is like the relationship of number 3. The relationship of the First Matter with nature is like the relationship of number 4.⁵⁹ In their book, Ikhwān al-Ṣafā' states that the designation of God and other entities in the universe is like the

⁵⁴ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 1:49.

⁵⁵ Ṣafā', 1:54.

و اعلم يا أخي أن الباري، جلّ ثناؤه، أول شيء اخترعه و أبدعه من نور وحدانيته جوهر بسيط يقال له العقل الفعال، كما أنشأ الاثنين من الواحد بالتكرار. ثم أنشأ النفس الكلية الفلكية من نور العقل كما أنشأ الثلاثة بزيادة الواحد على الاثنين. ثم أنشأ الهيولى الأولى من حركة النفس كما أنشأ الأربعة بزيادة الواحد على الثلاثة. ثم أنشأ □ ائير الخلاق من الهيولى و رتبها بتو □ العقل و النفس كما أنشأ □ ائير العدد من الأربعة بإضافة ما قبلها إليها كما مثلنا من قبل.

⁵⁶ Fakhry, *A Short Introduction to Islamic Philosophy, Theology, and Mysticism*, 56.

⁵⁷ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 1:50.

⁵⁸ Fakhry, *A Short Introduction to Islamic Philosophy, Theology, and Mysticism*, 56.

⁵⁹ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 1:54.

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designation of the number 1 from other numbers. The identification of the universal active intellect from the entities is like the identification of the number 2 from other numbers. The designation of the universal soul from the entities is like the designation of the number 3 from other numbers. The identification of the first material from the entities is like the identification of the number 4 from other numbers.⁶⁰

God is like the number 1 which is the source and initial principle of creation. God is the first being and cause that is the source of everything. God has power, primacy and knowledge, but does not keep it for himself, but rather spreads it through a process of emanation that takes place continuously without stopping.

The first substance or plurality created by God in the process of emanation is the universal active mind (*al-'aql al-fa'al al-kullī*). This universal active mind is likened to the number 2 which is very close to the number 1 (God), because it was created directly without intermediaries. Reason is the substance that is the great gateway to the unity of God,⁶¹ non-material substances that act as intermediaries between God and other substances beneath him.⁶² The universal active reason is the first direct emanation from God (*wājib al-wujūd*). This active mind only has an efficient cause, namely God,⁶³ just as the number 2 is only composed of the number 1 which is added to the number 1. The substance of the mind is purely passive, obedient, calm, and permanent to unity with divine principles. He is the highest being in nature. His passive nature towards God is a symbol of the nature of creation towards its creator. Nature can only receive, while God gives.⁶⁴ Ikhwān al-Şafā' says:

*The Prophet said; the first creature that Allah swt. create is mind. Then God said to him: accept it, and he accepted it. Then God said again: go!, and he went. Then God said: For the sake of My glory and majesty, there is no creature that I created greater than you, through you I take, through you I give, through you I reward, and through you I punish.*⁶⁵

*Know it my brother, that all these forms are forms and archetypes. Then God transmits it into the universal mind which is the first being that exists because of God. With His words, God manifests universal reason which is a simple spiritual substance. In this mind there are all forms of natural existence.*⁶⁶

⁶⁰ Şafā', 1:53.

⁶¹ Şafā', *Risālat Al-Jāmi'ah*, 33.

⁶² Darraz, "Kosmologi Ikhwan Al-Shafa."

⁶³ Nasr, *An Introduction to Islamic Cosmological Doctrines: Conceptions of Nature and Methods Used for Its Study by the Ikhwan al-Safa, al-Biruni, and Ibn Sina*, 56.

⁶⁴ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 3:187.

⁶⁵ Şafā', *Risālat Al-Jāmi'ah*, 460.

⁶⁶ Şafā', *Rasā'il Ikhwan al-Şafā'*, 1957, 3:233–34.

و اعلم يا أخي بأن الموجودات كلها صور و أعيان غيريات أفاضها الباري، عز و جل، على العقل الذي هو أول موجود جاد به الباري و أوجدته، و هو جوهر بسيط روحاني فيه جميع صور الموجودات غير متراكمة و لا متزاحمة.

The second substance created by God in the process of emanation is the universal soul. The universal soul has two causes, namely the efficient cause from God and the formal cause from reason,⁶⁷ as the number 3 is composed of the sum of the numbers 1 (God) and 2 (reason). The universal soul carries out two activities, namely receiving the emission of form from the universal active mind that is above it and emitting form to the substance beneath it and the emanation process, namely the first matter.⁶⁸ This is the same as the number 3 which is made up of the number above it (number 2) and is also made up of the number below it (number 4).

The third substance created by God in the process of emanation is the first substance (*al-hayūla al-ūla*). The first material is a substance in the form of pure form that has neither quantity nor quality.⁶⁹ The first material has 3 causes, namely the efficient cause from God, the formal cause from the mind, and the final cause from the soul.⁷⁰ The first material is likened to the number 4 which is composed of 3 numbers, namely number 1 (the efficient cause of God) and number 3 (the final cause of the Soul), while the number 3 is continuously composed of numbers 2 and 1, so that the number 4 is composed of 3 numbers, namely the number 1, 2, and 3, because $4 = 3 + 1$. Meanwhile 3 come from $2 + 1$.

C. Conclusion

In contemporary era, mathematics studied in schools is merely materialist, containing only a collection of meaningless numbers and formulas. Long before contemporary era, there was a group of philosophers called the Ikhwān al-Ṣafā' who wrote thoughts about mathematics which were full of philosophical values such as the value of monotheism and the value of creation. Even mathematics became the main basis for all his thinking. In this research, the researcher focuses on studying the thinking about Ikhwān al-Ṣafā' numbers in his phenomenal book *Rasā'il Ikhwān al-Ṣafā'* which turns out to have the value of monotheism and creation. How are the values of monotheism and the value of creation in harmony with number theory? The value of monotheism is reflected in the characteristics of the number 1, that the number 1 is essentially simple, undivided, and has no parts. The number 1 is the source of the other numbers after it in the number ladder sequence. The number 1 is likened to God Almighty. God is undivided and has no parts. God is the source of the creation of the

⁶⁷ Ṣafā', 3:233.

⁶⁸ Ṣafā', 3:234.

⁶⁹ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 2:8.

⁷⁰ Ṣafā', *Rasā'il Ikhwan al-Ṣafā'*, 1957, 3:233.

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universe. Ikhwān al-Şafā' says that in the knowledge of the number 1, there is knowledge of God, the Most Glorious and Almighty. Meanwhile, the value of creation is reflected in the sequence of the number ladder which describes the creation of the numbers 2, 3, 4, 5, and so forth, originating from the number 1. The relationship between God and nature can be described by the relationship pattern of the number 1 and the numbers after it. The manifestation of the universe described in the theory of emanation is in harmony with the manifestation of numbers in the number ladder sequence. The manifestation of the universal active mind is the same as the manifestation of the number 2 which only has one cause, namely God (efficient cause), because $2 = 1 + 1$. Thus, the manifestation of the universal soul is equal to the manifestation of the number 3 which has two causes, namely God (the efficient cause) and the universal active mind (formal cause), because $3 = 2 + 1$. Then, the first material manifestation is equal to the manifestation of the number 4 which has three causes, namely God (efficient cause), universal active mind (formal cause), and universal soul (final cause), because $4 = 3 + 1$, and the previous number 3 comes from $2 + 1$, so the number 4 is composed of the numbers 1, 2, and 3. This research in the field of philosophy of numbers or philosophy of mathematics will be the beginning and attraction of other similar researches in the future, such as research on the philosophy of numbers written by other philosophers.

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