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Mathematics Calculations in Buddhism

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ABSTRACT- Mathematics is the science that deals with the calculation using symbolic logic, mathematics existed before the Buddhist era. The Buddhist scriptures tell mathematics applied to life, thought processes and ancient wisdom that are passed down from the past and passed on to the present society such as Sangkhayãpakãsakadīka scripture that is a scripture about mathematics or calculation methods of counting 6 types which was synthezed from Tititaka for studying various counting units easely. These effected to understand Identification, counting, calculation, including estimation in order to communicate, tell, compare the value of things. Then it was applied for human's daily life such as exchange, taxation, calendaring, creating a time scale. And including creating a symbol that conveys common meaning in society and humanity's good life.

Keywords: Buddhism, Mathematics, Calculation

I. INTRODUCTION

Mathematics is a science that focuses on abstract structures that are defined through groups of axioms, which there is exact reasoning provided using a logic symbol, and math notation. We generally define mathematics as a field of study of form and structure, change, and space. In short, mathematics is interesting "Shape and number" since mathematics does not generate knowledge through experiments, some people do not consider mathematics as a branch of science. In the past, people would use things instead of numbers to count, as the longer the population grew, people began to think of making numbers instead of counting using things instead. Then, there is addition, subtraction, multiplication, and division, so they are considered mathematical constructions.

Mathematics comes from a Greek word meaning "Science, knowledge, and study" Translated as "love to learn" in North America popular acronym for mathematics is Math. In other countries where English is popularly abbreviated as Maths. Mathematics knowledge is steadily increasing through research and application, so mathematics is a tool of science. However, the mathematical invention does not necessarily aim at the applied science, pure mathematics, and applied mathematics (Wikipedia, 2019). Since mathematics uses symbolic logic and Math notation which made all activities performed through a clear process, we can consider mathematics as a language system that adds precision and clarity to natural language through some terminology and grammar for explaining and studying both physical and abstract relationships. However, the meaning of mathematics has many perspectives, many of which are discussed in articles on the philosophy of mathematics.

Mathematics is a science that focuses on abstract structures established through axioms, in which exact reasoning is made using symbols logic, and Math notation. Thus, we commonly define mathematics as a field of study of form, structure, and change.

The Buddhist scriptures tell stories of lifeways, thinking processes, and ancient wisdom that are transmitted from the past and influencing the present society such as Sangkhayãpakãsakadīka scripture which describes the poetry of Sangkhayãpakãsakadīka of PraWirasThera as the issues concerning Mathematics or calculation methods of counting 6 types that have been compiled from the Tripitaka to facilitate the study of the various units that appear in the Tipitaka. Sangkhayã is Pali language means specifying, counting, calculating, or estimating (Phumphalopikkhu Foundation, 1991: 34) it is used for communicating and comparing the value of things and has been developed as a tool for barter, taxation, calendar setting, as well as building a scale related to time and includes the units involved in counting that are necessary to create symbols that convey meaning in society such as A measure of a distance of 4

Cowut (Form) is 1 Yod (16Km.) or Measure of volume 4 Arahaka is 1 Tona 1 (1000 ml.), etc. (Pramuan Pengchan and Chatchawan Bunpan, 2000: 15).

Nowadays, international standard rules are used in the systems of market mechanisms, trading, object value, and exchange, and new tools have been created to make the units of measurement more precise and clear. In Thailand, the evidence appears in the Weights and Measures Act, 1923, which has approved the International Weights and Measures System (Metric System) As a result, the custard and traditional or traditional temples fade away from Thai society, However, the Buddhist education of monks has retained the original language in order to preserve the Buddha's words.

Because of the traditional forgotten when the mentioned principles related to counting, measuring, weighing. For example, money in Pali or translated into Thai, creating confusion and questioning in the interpretation of the principle, for example, money in Pali or translated into Thai, causing confusion and doubt in the interpretation of Buddhism such ad Vinaiyapitaka, Mahaviphunga, Parachikakanda said that" A monk has a mind to steal, drops his container touches the property for a price of 5 Masoka (One Thai Baht) or more than is punishable at a Thukkoka level, make it movement has Punished of Tulalajjaiya level, put it in his own container or take it to a certain level, the cap of the hand is punished at Pārāchika level [Pārāchika is the end of being a monk]" (Vi.Maha.(Thai) 1/94/484) From this example, there was some doubt among Buddhists about the exchange rate such 5 Masokka, etc. In addition, problems with measuring distances such as in Vinaiyapitaka Mahavipungka Sungkathisesakandha said that "A monk who will build an accommodation... Should create a size to build as follows 12 creeps long, 7 creep wide by the creep of Buddha….if over-built, it will be considered a punishment at Sungkathisesa level[Secondary penalty from Pārāchika]". Therefore, From the measure that " Creep of Buddha" means what length size currently, these leads to the study of mathematics in Buddhism to find answers by studying the history, types of counting, rules of use, units of counting, other measurements that replace counting, Influence and value. And to establish a body of knowledge in interpretation to be used in the study of Buddhism correctly, which is to preserve and inherit Buddhism for a long time.

II. THE ATTITUDE OF BUDDHISM TOWARDS MATHEMATICS

Buddhism sees that truth or the escape of suffering is inaccessible by means of mathematics, which appears in many places that speak of the limitations of logic such as Kālāmāsūtārā (Ang. Ekka. (Thai) 20/53/266) that "Mā Tukkāhetu– don't be convinced by logic, Mā Nāyāhetu– do not be convinced by inference, Mā Arkārāpārivitukkākenā–do not be convinced by thinking about the reason" and another part (M.M. (Thai) 13/108/259) to show that the Dharma that the Buddha enlightened was"Atākākāvājāro – not a logical vision", but to be correctly practice "Sammasangkap". Hence, the foregoing implies a direct practice, which is the right attitude of thinking about how those who want to escape suffering should deal with their thoughts first. There are many things that humans have to think about, but the thoughts that lead to the release of suffering must be related to the goal or the release of suffering. So if you go back and look at the details of "Sammasangappa", you will find that each item emphasizes the training of the mind, not letting go of the mind as desired.

From the attitude of Buddhism towards thinking, if you look back to what mathematics is used as a base of ideas, 2 things above are "Confidence" and "Experience" Buddhism will have views on mathematics as follows.

1. Mathematics does not choose evidence to think of it, so the Confidence and the experience can be goodness or sin, But it is usually Sin because the nature of thought always follows the drive of Greedy, angry and foolish. If it is to support the goals of Buddhism both Confidence" and "Experience, it should be in the scope of goodness only.

2. the confidence and experience Both have limitations, it is evident that humans sometimes take precautions and false experiences as proof of thinking because they understand that they are correct.

According to point of view of Buddhism, although mathematics will not save suffering, it is not useless in this field for the following reasons. Mathematics, as a field of science, is one way or another contributing to human civilization, Mathematics evolved from the definitive thinking of logic and has been hugely useful for humanity from the past to the present, it was the same way of science is developed through experiential thinking of logic, human beings benefit from science all over the page. On the other hand, scientific knowledge is harmful to mankind, but not directly from science, but from the hands of a man who misuses scientific knowledge.

Although there is no escape from suffering from mathematics, humankind is not born to escape suffering altogether; therefore, various fields of knowledge are now learned not to escape suffering in the meaning of Buddhism. But we still have to study for the benefit of mankind, probably only those who reject secular activities would want to study nothing but the teachings of their religion. However, if living is involved in secular activities, knowledge in various academic fields is essential, including logic and mathematics.

Some people may not like math or other subjects which might be possible, but dislike logic is equal to self-denial because in everyday life everyone thinks logic, That is, thinking that is always based on confidence and based on experience. Therefore, if we know a good method of logical thinking, we can think orderly and evaluate our own and others' thoughts on how credible each thought is. This would be better than automated thinking without the inspection of the conceptual convention.

Therefore, Buddhism and mathematics have to do with the truth that mankind should seek, that is, Buddhism sees that life suffers and the elimination of suffering is Nirvana, which means the attainment of the ultimate truth of man. The mathematics section is a tool of knowledge and serves to establish a method of thinking in order to understand the truth. Therefore, dealing with truth, Buddhism, and mathematics both place importance on both ideas, but Buddhism places more emphasis on content thinking than methods of thinking like mathematics.

III. BUDDHISM AND MATHEMATICAL CALCULATION

In the past, the established units of measure were used only within the same group, which were accepted and used within societies of the same culture and government called “Local unit or tradition unit of measure" When humans are in contact with other administrative communities it becomes inconvenient to trade each other, as each group has different units of measure. Therefore, human society needs the measure of size and quantity, which is accepted by all social groups, which is the source of the international unit of measure to support the development of the country which is essential to science and technology. A Buddhist perspective on computation, there is a concept that we live in in the midst of a world full of value systems. In the past, science and industry were as if marrying a spouse together to bring about great prosperity, because industry promoted science and science helped it flourish.

Buddhist scriptures and mathematical calculations are also clearly stated Kạp or kạlṕ refers to the long periods of the world that cannot be defined in days, months, or years, so Kạp was divide into 4 types

1) Kạp age is the age determination of the animal born at what age and when the age expires is called “one Kạp”, for example, the buddha era 1 Kạp of Human is estimated 100 years.

2) Xạntara kạp is Determining human age , for example , the length of human life expectancy decreases from the year Xaśngk̄hiya to 10 years, then increases from 10 to the year Xaśngk̄hiya (The year Xaśngk̄hiya refers to a long time that the age cannot be counted.).

3) Xaśngk̄hiyakạp = 64 Xạntarakạp.

4) Mah̄ā kạp = 4 Xaśngk̄hiyakạp = 256 Xạntarakạp, for example, the time of "One Mah̄ā kạp " can be likened to that earth (Planets) had emerged until it was extinguished (Royal Academy, 2009 : 287).

The Lord Buddha spoke about the time in One Mah̄ā k ạp = 4 Xaśngk̄hiyakạp that “Monks, Xaśngk̄hiyakạp for 4 types were;

1. At the time of S̄ạngwạṭṭa kạp (Kạp of Degeneration) going on, there on one can count how many years it is such as 100 or 1,000 or 100,000 years.

2. At the time of S̄ạngwạṭṭa ṭhāyī kạp going on, there on one can count how many years it is such as 100 or 1,000 or 100,000 years.

3. At the time of Wiwạṭ ṭa kạp going on, there on one can count how many years it is such as 100 or 1,000 or 100,000 years.

4. At the time of Wiwạṭ ṭa ṭhāyī kạp going on, there on one can count how many years it is such as 100 or 1,000 or 100,000 years.

All the monks this 4 Xaśngk̄hiyakạp (S̊.S̄ḷā. (Thai) 18/128/219), therefore, the Xa śng k̄h ị ya kạp means many or countless or infinity.

However, in Content of S̄ā śa pa sūtr (S̊.Ni. (Thai) 16/129/220) explained that when the Buddha was at Phra Chetawan Temple, which Anathabintikasethi built-in Phra Nakhon Sawatthi area. A monk came to the

Lord Buddha to ask, “How long is one kạp? The Buddha metaphor that it appears there is a city built of steel 16Km. Wide 16Km. Tall 16 Km. which fulled of turnip seeds gathered in clumps. Then, a young man took one lettuce seed out of the city, spending 100 years per lettuce seed until the lettuce seeds are depleted from the city, this is called "One kạp".

IV. COUNTING AND MATH CALCULATION

In addition to calculations on kạp, Buddhism also mentions a computation method called “S̄ ạngk̄hyā” which means counting, calculations are divided into two things:

1. Pkati s̄ạngk̄hyā (Amount) refers to the normal number of the counting, that is to say, 1 2 3 4 5, for example, in the message that 1 student, has 20 baht, buy 3 pencils, a price is 4 bahts, totaling 12 bahts.

2. Pū raṇa s̄ạngk̄hyā (Order) refers to counting in the order that or counting the names in layers, that is to say, the order such as the first, second, third, fourth, fifth, etc. for example; 1st son of the 2nd millionaire, in the year of the 3, Final exam in number 4, by the fifth year, not until the sixth year graduated.

Recorded in the form of a Buddhist scripture called S̄ ạngk̄ha yā pa kāsa ka ḍīkā, The work of Phra Sirimangkalajarn explains the spell in S̄ ạngk̄ha yā pā s̄a ka pkrṋ , PraYaanWilasthera's poetry, unspecified year in which the thesis is classified in mathematical and economic literature, is the description of measure of distance, grab, weighing, counting, money, and coin. The unit of counting uses human organs as an elementary measure, such as inches, creep, cubit , wa, etc. If smaller than that, use grains as a unit such as paddy, beans, sesame, etc. And if larger, it will use equipment or pets as a measure, such as a wagon, 100 cattle, etc. The Pali grammar is categorized by two types: 1) Pakati s̄ạngk̄hayā and 2) pūraṇa s̄ạngk̄hayā.

Classified by Pathawicāra (Criticism) 5 types were; 1) Xis̄ s̄akas̄ạngk̄hayā is to count obtained by means of addition, 2) Khuṇita s̄ạngk̄hayā is to count obtained by multiplication method , 3) S̄ạmphạnṭh́ s̄ạngk̄ha yā is to count obtained by counting word links , 4) S̄ạngketu s̄ạngk̄hayā is to count types of objects , people, objects that humans define as numbers , and 5) Xaneka s̄ạngk̄hayā is to count that is so valuable that it cannot be specified.

In addition, there are 6 categories that are categorized by a pattern of Sangkhayāpakāsakadīka; the writing of Phrayanvilas were; 1) Xạthṭh'ā s̄ạngk̄hayā is Measure of distance 2) Ṭhạyya s̄ạngk̄hayā is Measure of Measuring, 3) Pamāṇa s̄ạngk̄hayā is Measure of weighing, 4) Ṗhạṇṭha s̄ạngk̄hayā is Measure of counting, 5) Mūlaphạṇṭha s̄ạngk̄hayā is Measure of price , and 6) Nīlakah̄āpaṇa s̄ạngk̄hayā is Measure of coin system.

In the content of Cạkrawāḷthīpanī scripture found that Xạthṭh'ās̄ạngk̄hayā is units related to meas uring area and distance, such as the first section: Ckkwāḷas̄arūpāthiniththes̄a has shown a summary of the universe which analyze the meaning of the term universe and earth, in which details of the universe are described in both size and space; 1) overall size, 2) land area, 3) wind area, 4) rocky area, 5) dust area, and 6) water area, which is measured as a cosmological utility. The second section Pạphphataniththes̄a showed mountain case divided into 4 speeches were 1) S̄inerukat̄hā on the matter of Sineru Mountian, 2) Yukhạṇṭharā thikat̄hā on the matter of Yukhanthorn mountain , 3) H̄imạntāthipạphphatakat̄hā on the matter of Himmaphan mountain, and 4) Cạkkawāḷapạphphatakat̄hā on the matter Chakkawal mountain , which there are characteristics of each type of mountain such as Sineru mountain has Has a special circular shape, has a tabor shape, Located on the water in the universe, like a mountain of ice, the part above the surface of the water, the other sink into the water, the size from the top of the mountain to the bottom long is 168,000 Yochń, wide 84,000 Yochń [One Yochń =16Km.]. It also describes the calculation of the time of the fall of the rock as the summit being cast from the highest heaven to the earth by using the time approximately 3 years, 2 months, 8 days, and 24 minutes. As for the calculation of distance , there is a unit of measure that is the longest is Yochń . The word “Yochń” has 2 types; 1) S̄ạtrạtnayạṭ̄hi is set as a walking stick for 7 cubits and used for measuring the land called “Ṗ humyāthiyochna”, and 2) Pạy̆carạtnayạṭ̄hi is set as a walking stick for 5 cubits used for measure the Phromma Heaven called “Phrh̄māthiyochna”, identify two mountain size measuring tools: Cạkwāḷayạṭ̄hi (Universe Mị̂wā), and S̄ineruyạṭ̄hi (mountain Mị̂wā). The characteristics of such instruments depend on the measurement of length, different magnitudes, for example, current metrology instruments such as Universe Mị̂wā comparable to a tape measure. The mountain Mị̂wā comparable to a ruler.

When studying the material on counting, it was found that there was a count that relates to counting time, especially the analysis such as Kạp, xas̄ngk̄hiyt, and koṭi having a style of writing by raising a spell as a preliminary chapter and then explaining in a descriptive way. “Kạp” for a very long time, the world

collapsed at one time was considered one Kạp, that is parable like a rock mountain Width, length, height on each side 1 Yochń, every 100 years, a person takes a fine, fine cloth and rubs it once until the mountain wears off, comparable to one Kạp longer.

The comparison of the two units of measurement requires the tools found in the Lanna literature and the readily available modern metrology instruments, the results of the empirical comparison are as follows: (Mahachulalongkornrajavidyalaya. 1996)

1. Distance measurement unit (Xạthṭh'āsạngk̄hayā), It is a unit of the length according to the international standard of measurement. It is measured in meters, symbolized by the English characters “m”. It is defined by the travel of light at a specific time of 1 / 299,792,458 per second. The length measurement can be measured with measuring tools such as Micrometer, vernier, meter, tape measure, or ruler. However, the measure of the distance in the Buddhist scriptures has 14 basic units; the smallest unit is Prmāṇū (atomic), and its longest unit is Yochń . The comparison uses the fingers as a starting point because they are the physical units. The comparison process is to measure, place fingers on the paper, then, use a pencil to draw each size according to the number that appears is 12 fingers. When comparing operations, it was found that 12 fingers were equal to 1 creep, comparing the creep and centimeters, it is 22.9 centimeters or 9 inches in a tape measure. The distance measurement unit is a creep, in measurement unit 2 creep is equal to 1 elbow. If compared with the international metrology standard, the creep is equal to 9 inches. For measuring the creep and elbows, the scripture of Winạyapiḍakamah̄āwiphạngkḥ designated the width and length of the residence of a monk that “the monk who will create residence ... will create a length of 12 creeps, width 7 creeps (Creep of Buddha) ... if over-built will be punished as Ṣạngḳh'āthiśēs " (Wi.Mh̄ā. (Thai) 1/346/383). From the above provisions, the ancient grandmaster said that Creep of Buddha equals 3 Creep of general man or equal 1 elbow of a carpenter. If so, the approximate residence creep of the general man has a length of 36 creeps and a width of 21 creeps in the units given, 2 creeps are 1 elbow. So to find the width and length by dividing 36 by 2, the result is 18 creeps. Hence, the approximate length of a monks' residence is 18 elbows and divide 21 by 2, result a width of 10.5 elbows (or ten and a half elbow)

The scripture of Winạyapiḍakamah̄āwiphạngkḥ designated measurements in inches that “A monk would make a new bed, able to make the bed leg only 8 inches (finger) tall (Buddha's finger) if it was more than that would be punished of Xābạtipācittīý” (Wi.Mh̄ā. (Thai) 2/522/608). According to the provisions, it is defined as the height of the bed legs that support the bed weight. However, there were problems from Winạyapiḍakamah̄āwiphạngkḥ concerning A very large Yochń area of the Sima (Sima is boundary designated for various monks’ activity) which contradicting the process of carrying out activities of the monks who have to sit in the same H̄ ạtt̄hbās (H̄ạtt̄hbās is to sit in the arm noose .) For example “The monks should not assume Sima is too big than 4 Yochń,5 Yochń,6 Yochń. Any monk assuming beyond the boundaries will be punished of Xābạtithukkḍ, the Buddha allows to assume a maximum of 3 Yochń only.” (Wi.Mh̄ā. (Thai) 4/140/216). According to the ordinance, when comparing the unit of measurement with the international unit of measurement is 1Yochń, equal to 16 kilometers, so the Buddha authorizes Sima 3Yochń, if measured as an international unit of measurement is no more than 54 kilometers.

2. Weighing unit (Pamāṇasạngk̄hayā) Using paddy as a counting unit, using a ruler and scale as a measuring instrument, the methods of measurement are as follows: (1) the measuring size of rice grains of 8 grains (8 Wih̄i as one māsk or 4 Paddy seeds as one 1 khuỵchā, 2 khuỵchā as 1 Masok) by measuring one grain at a time to find the mean length of the rice grain, it was found that the shortest rice was 1 cm, the longest was 1.2 cm and the average length was 1 cm. (2) Weighing eight kernels, weighing 1 grain at a time, it was found that the heaviest kernels were 30.50 g, the lightest 29.20 g, and the average weight was 30.2 g. When the average weight is known, it can be used as a basis for analyzing the weight of other objects. Therefore, Sangkhayāpakāsakadīka In the weighing scale, the smallest unit was paddy and the largest unit was a wagon, it was pointed out that in the Buddhist era, wagons were used for transport and rice was a commodity.

3. Measuring unit (Ṭhạỵỵasạngk̄hayā) Measurement of volume in the SI unit of measurement using the unit of measurement of Mass is Kilogram (kg), which are Unit of mass which is equal to the mass of a kilogram. The international prototype is a cylinder made of an alloy between platinum and iridium which Today, both digital and needle scales are used. The Scripture of the Buddhist Discipline specifies the bowl size of the monks' utensils that they must have and be preserved. In the event that there is an additional alms bowl, the Buddha allowed the size of the bowl to say “The monks can only keep the same monks for 10 days at most, if they are kept over the limit they will be punished as Niśs̄ ạkhkhiyapācittīý” (Wi.Mah̄ā. (Thai) 2/601/124). There is a bowl for 2 types; iron bowl and clay bowls. And 3 sizes (1) big bowls, (2) model bowls, and (3) small bowls (Wi.Mah̄ā. (Thai) 2/602/124). Today's popular bowls are 9 inches in

diameter, 7 inches deep, and can contain large amounts of food. However, the Discipline Scripture allowed receiving food only for the edge of mouth bowls only and may accept less. When comparing the amount of paddy with the metric measuring cup of the bowls, it is classified as a large monk, according to the discipline, can be measured according to the metrological principle by using mass as a kilogram (kg) which can be compared to oz and cups, the amount of paddy is more than 500 ml.

4. Counting unit (Ṭhaṇṭhaśaṇgk̄hayā), it is an evaluation tool used for weighing, measuring, and measuring means Normal counting, for example, 1, 2, 2, 3, 4, etc. This counting includes addition, subtraction, multiplication, and division. The main principle used in the Dharma Vinai is to count the number of monks who have participated in monastic activities or went to an invitation (Wi.Maḥā. (Thai)4/157/240).

5. Price value (Mūlaṭhaṇṭhaśaṇgk̄hayā) This section is about trading value, commodity-based pricing, costs, profits, needs, feelings, values, and consumer behavior. In other words, it is money that represents things like the word "Māśk" They are heavier in different countries and have different ingredients , but they are used as fictional symbols to have the same price. Therefore, the turnover depends on the exchange rate in each area.

6. Nīlakaḥāpaṇaśaṇgk̄hayā, it is about a specific type of money , example of the Buddhist era , Nīlakaḥāpaṇaśaṇgk̄hayā used in Bihar . Currently, the currencies in each country and region, such as the euro, the dollar, etc.

V. Buddhism and Mathematics

The analysis of Buddhism and mathematics is an abstract dimension and a concrete dimension, especially in Buddhism counting in-depth, focusing on a person or life. While the international unit emphasizes the concrete dimension for materialism and its application. The principle of measurement is mainly to increase the speed, the force, but also depends on the mass, the more mass increases the resistance and burns, wasted resources, In contrast to Buddhism, the focus is on reducing everything with effort (speed). Although it is studied using international units to explain the fact, it is not true of all problems. Therefore, discovering the ultimate theory of the universe, may not help the human race to survive further, or perhaps not even affect human life at all (Stephen William Hawking, 2005 : 37).

The Buddhist scriptures show the Buddhist progress and mathematics in explaining the fundamental equations measuring the velocity of each world and the distance of each world has an effect on time. In addition, the counting and universal measure also tell different stories, showing the evolving thinking and changing worldview. Storytelling through international units and counting correlates with changing social, economic, and political conditions, some are still in use in that landscape and some are universal or globally. Thus, it has pointed out that impermanence remains with all things, not even the units of measure we care about. Another view is how the world of science can create technology for "Extends the organic range of humans" can be able to see what the optic nerve cannot see affected "the emotional expansion of the optic nerve" increasingly, effected "The mood of clairvoyance" more thoroughly. whether it's the weight (kg), length (m), and time (s). This concept is consistent with the idea that the sensory organs in the human body tell us what is happening in the world around us (Owen Bishop. 1997 : 10).

The value of counting in society from the inheritance of knowledge from the past to the present through Buddhist teachings, customs, traditions, culture, economies such as using Thanan or a measuring tank for exchange and trading purposes. In addition, evidence of counts, exchange, calculation, trading, and distance measurement has been recorded in the past and is also a source for researching ideas related to academics such as history, geography, economy, politics, government. As for Buddhist values, it is an understanding of the principles of numbers related to counts, gauges, etc. It is an important element that will enable the students of the Tripitaka to gain a deeper understanding of the principles.

VI. Conclusion and Suggestion

As mentioned above, Buddhism is concerned with thinking, mathematics is related to the method of thinking. Buddhism has made it clear that logical thinking cannot lead to the relief of suffering, therefore it seems that the two sciences are completely different, but upon careful consideration, there is still a difference in the same is also included in some points as follows;

Buddhism does not deny that humans do not think mathematically, it merely says that freeing suffering cannot be reached through mathematical means. Although people can be freed from suffering on different

levels, Arahanta and mortals all think mathematically. That is to say, sometimes use confidence and sometimes experience as a thinking base because both is the nature or nature of every human being but may be different in what they think. However, the pre-enlightened Buddha used both ways of thinking of mathematics as well.

In fact, Buddhism is not without a method of thinking, in which Buddhism presents a way of thinking that produces wisdom (Ṣạmmāṣạngkạppa is the one in Dhamma topics that bring wisdom together with Ṣạmmā thiṭṭhi in Mạkhkha 8) called " Yonisomanaṣikāra" to think through subtle method s or strategies . The question may arise that when Buddhism has a method of thinking , it may be possible to ask , "What should a human think" as well as logic, the answer is "yes", but Yonisomanaṣikāra is not a rule of thinking like logic, which, when breaking a rule, can say that thinking is wrong such as The result 2 in mathematics can be derived from 1+1, 3 – 1, 2x1, 4 – 2, 5 – 3, etc. If this rule is broken, it can be said immediately that it is wrong . But Yonisomanaṣikāra is a way of growing wisdom t o know life and things, actually, it gives importance to what we think, not a mathematical method of thinking.

VII. Conclussion

Mathematics is a science that focuses on abstract structures established through axioms, in which exact reasoning is made using logic, symbols, and Math notation. We generally define mathematics as a field of study of form and structure, transformation. In Buddhism, it tells the story of lifeways, thinking processes and ancient wisdom that are transmitted from the past and influencing the present society such as Sangkhayãpakãsakadīka scripture which is about mathematics or counting methods, 6 of which are collected from the Tripitaka for the convenient study of the various units that appear, Sangkhayã in Pali means identifying, counting, calculating or estimating. It is used to communicate and compare the value of things and it was developed as a tool for the exchange, taxation, calendar assignment, as well as the creation of time scales, and includes the units involved in counting that are necessary to create a common meaning in social.

Consequently, (1) there are 6 types of counting in Buddhism according to Sangkhayãpakãsakadīka : (a) Xạthṭh'āṣạngk̄hayā (Distance measurement unit), (b) Ṭhạyyaṣạngk̄hayā (Measuring unit), (c) Pamāṇaṣạngk̄hayā (Weighing unit), (d) Ṗhaṇṭ̲haṣạngk̄hayā (Counting unit), (e) Mūlaṗhaṇṭ̲haṣạngk̄hayā (Unit prices and values), and (f) Nīlakaĥāpaṇaṣạngk̄hayā (Coin unit). (2) It can be categorized according to the Pali grammar in 2 types: (a) Pakatiṣạngk̄hayā, and (b) pūraṇaṣạngk̄hayā. (3) Classified by Pathawicāra (Criticize) for 5 types; (a) Xiṣ̄sakaṣạngk̄hayā (How to add), (b) Khuṇitaṣạngk̄hayā (Multiplication method), (c) Ṣạmphaṇṭ́hṣạngk̄hayā (How to Link Counting Words), (d) Ṣạngketuṣạngk̄hayā (designation is used instead of numbers .), and (e) Xanekaṣạngk̄hayā (The designation is used in place of the uncountable value).

The count in the Cạkrawālathīpanī is a measure of distance, space, and composition of the universe, Counting section in Chinakālamālīpakrṇa It is a measure of time, the difference between counting and the international standard is: Measurements, instruments, and definitions of counting in Buddhism focus on the abstract dimensions that are within the section. The international standard unit of measure, as a science, emphasizes the physical dimensions, is an external measure that has an influence on Buddhism because it is used to confirm truth according to Buddhist principles. Therefore, counting has historical, social, and Buddhist literary values. Religion as evidence, counts, exchange, measurement, trading, and tools for understanding the Buddha's principles.

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