Mathematics in "Yajurveda"

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A plenty of numeral words can be sisualised in "YAJURVEDA". Mathematics as Geometry, Mensuration can also be viewed in "Yajurveda"

क एका च मेतिस्र चमेपञ्च च मेसप्त च मेसप्त च मेनव च मेनव च मडए कादा च मडएकादा च मे त्रयोदा च मे त्रयोदा च मेपञ्चदश च मेपञ्चदा च मेसप्तदा च मेसपतदा च मेनवदा च मेनवदा च मड

र एकतिणाति चमडएकविअयांतिचमे त्रयोविअयांतिचमे त्रयोविअयांति चमेपञ्चविअयांति चमेपञ्चविअयांति चमेसप्तविअयांति चमेसप्तविअयांति चमेनवविअयांति चमेनवविअयांति चमडएकत्रिअयांच्चमडएकत्रिअयांच्चमें त्रयस्त्रिअयांच्चमेअज्ञेनकल्पन्ताम्।। य० 18.24

क चतस्रचमे डश्यै च मेडश्टौ च मे द्वादा च मे द्वादा च मोडा च मोडा च मेविअयांतिचमेंविआतिचमे श्र चतुर्विअयांति चमेचतुर्विअयांति चमेडश्टाविअयांति चमेडश्टाविअयांति चमे द्वात्रिअयांच्चमे द्वात्रिअयांच्चमोट्रिअयांच्चमे ाट्रिअयं ाच्चमेचत्वारिअयं ाच्चमेचत्वारिअयांच्चमेचतु चत्वारिअयांच्चमेचतु चत्वारिअयांच्चमेडश्टाचत्वारिअयांच्चमे यज्ञेनकल्पन्ताम्।। य० 18／25

In "Ṛgvedadi bhashya bhumika", "Maharshi Dayanand Saraswati" writes-

"From these incantations, God has been lighted three types of Mathematics- "Arithemetic", "Algebra" and Geometry. In incantation 18/24, the first digit in one (1). When one (1) is counted twice, it yields Two (2) as – 1 + 1 = 2. Similarly, addition of other numbers should be taken into consideration. Also, similarly, when "Three" (3) is added with "One" (1) it gives "Four" (4) i.e, 1 + 3 = 4 and when "Three" (3) is added with "Three" (3), it gives six (6) i.e., 3 + 3 = 6 or when "Three" (3) is multiplied with "Three" (3), it gives "Nine" (9) i.e. 3 x 3 = 9.

In this way on adding and multiplying "Four" (4) with "Four", "Five" (5) with "Five", "Six" (6) with "Six", "Eight" (8) with "Eight" and on expanding the incantations 18/24 and 18/25, all the arithmetical operating are derived.

As five with five yields (55), so as Six-2 (66), Seven-2 (77), Eight-2 (88) etc.

In "History of India" (Bharat VarshKaItihas) [Vedic and Rishi's festival = vedictathaarshparv], Third subsistence (Tritiyavrity) on page P2-83 "Acharya RamdeoJi B.A." writes- "Arithmetic- Its root is also is vedas and have been seeing these in vedas, "Aryas" formulated its laws. In incantations 18/24, 18/25, etc. along with Algebra, Arithmetic has also been described.

For ancient "Aryas" who have formulated harder rules of "Geometry" and "Astronomy", formulation of rules of "Arithmetic" has not tedious job".

In "Bharat varshkaItihas" modified edition, second subsistence, on page 81, "Sri Raghuvirsharandublis" wirtes-

"The methods of mathematics have been discussed in detail in incantations 18/24 and 18/25 of "Yajurveda".

इमामेडअग्नडइश्टका धेनवः सन्त्वेका च दा च दा च भातं च भातं च सहस्रं च सहस्रंचायुतंचायुतं च नियुतं च नियुतं च प्रयुतंचार्बुदं च न्यर्बुदं च समुद्र च मध्यं चान्तचपरार्द्धचैतामेडअग्नडइश्टका धेनवः सन्त्वमुत्रामुश्मिँल्लोके।। य०–17／12

In "Ṛgvedadi bhashya bhumika" "Maharshi Dayanand Sarswati" writes before translating this incantation-

"Matheatics is now described by bricks" That is O learned men! These bricks should be as good for me as the cows providing milk as oblation material- "Oblation for proving desired happiness" and so as to you which "Eka" (one-1) and its ten times "Dash (Ten-10), its ten times "Shatam" (Hundred-100), its ten times "Sahasra" (One thousand- 1000), its ten times "Ayutam" (ten thousand -10000), its ten times "Niyut" (lakh – 100000), its ten times "Prayut" (ten lakh-1000000), its ten times "Koti" (crore- 10000000), its ten times "Arbud" (ten crore – 100000000), its ten times "Nyarbud" (1000000000), its ten times "kharb" (10000000000), its ten times "Nikharb" (100000000000), its ten times "Mahapadm" (1000000000000), its ten times "Shanku" (10000000000000), its ten times "Samudra" (100000000000000), its ten times "Ant" (1000000000000000), and its ten times in parardh (10000000000000000).

The modern decimal system can be compared from this incantation.

The counting upto 48, 000 numbers, even numbers, addition, subtraction, multiplication, division, square, cube square, root, cube root etc. have been discussed in 18/24 and 18/25 of "Yajurveda"

In "Vedic sampatti" (second edition), on page 373, "Pandit Raghunandan Sharma, Sahitya Bhushan" writes- "In 17.2 of "Yajurved", the numbers from "Unity" to "Parardh" have ben lighted. This incantation describes great numbers, Here in 17.2, it has also been told- these bricks of mine, one as useful as cones in oblation. This number is for counting of bricks. The bricks were made for fire-pits and so those are considered as useful as

cows for oblation. The bricks were of definite measure and so it was indicated by mathematics that this definite amount of bricks would be required for making a fire-pit of find measure".

In "Vedic Sahitya", (First edition, Varanasi), on page- 320-321 "PouranikPandit Ram Govind Trivedi, Vedantshastri" writes-

"Aryas' considered "Arithmetic", "Algebra" "Geometry" etc. under Astronomy the shattottar counting is described in "Taithriya code (Sanhita)", "Trayani code", "Kathak code" etc. In 17.2 of "Yajurveda", there is a discriiption of numbers upto "ten kharv" by providing 1 followed by 12 zeros"

On page 307, in "Bhartiya Sanskriti" second edition, "Prof. Shivdatt JiJnaani M.A." writes-

"Arithmetic initiates from vedic-period. On that time, the counting of smallest and smaller, greatest and greater numbers was known. The description of these numbers is in 17/2 of "Yajurved". –Ek, Dash, Ghat, Sahasra, Ayut, Niyut, Prayut, Arbut, Nyarbud, Samudra, Madhya, Ant and Parardh. The description of tables of "Two" (2) and "Four" (4) is in 18/25 of "Yajurveda". From this it is evident that, addition, Subtraction, multiplication, division etc. the fundamental elements of "Arithmetic" were known completely in vedic-period"

Geometry in "Yajurved":-

Geometry has also been described in "Yajurved":-

अयंवेदिः पराडअन्तः पृथिव्याडअयं यज्ञोभुवनस्य नाभिः।
अयअयंसोमो वृष्णेडअ वस्य रेतोब्रह्म्यांवाचः परमंव्योम।।

In "Ṛgvedadi bhashya bhumika" is "Ganit Vidya Vishaya" on page -109, "Maharshi Dayandand Sarswati" writes-

"Geometry has been lighted by this incantation, because in construction of attars, there is instructions about Geometry. As, the shapes of triangle, quadrilateral, a hawk,a share etc, as the shapes of attars, considered by "Aryas" under Geometry. The boundary of the earth is called its circumstance and line turning top to its bottom is called its diameter. The moon and other planets also have circumference, diameter etc. The sun, fire, air, also hence circumferences. Similarly, "Transursal", "Egator" etc. can be deriving.

References
[1]. Ṛgvedadi bhashya bhumika, by Dayanand Saraswati.
[2]. Yajurveda, translated by Sayan.
[3]. Vedic Sampatti, by Pt. Raghunandan Sharma.