

VEDIC ARITHMETIC

Lesson – 5

Structural Composition of Vedic Ganita Sutras & Upsutras (VGS) text

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Lesson – 5

1. VGS Text

VGS text is in Devnagri. The Devnagri alphabet (DA) is of compactified five fold formats: (i) Letters (ii) Numbers (iii) Sathapatya (Geometric Formats) : (a) Space content (b) Full unit bodies and (c) Half

unit bodies. Far to be parallel with structural composition of VGS, one is to be parallel with five-fold format features of DA.

2. Thirty Six distinct letters

VGS text avails following 36 distinct letters:

- (1) अ (2) आ (3) इ (4) ई (5) उ (6) ऊ
 (7) ऋ (8) ए (9) ओ (10) ऐ (11) क् (12) ख्
 (13) ग् (14) घ् (15) ङ् (16) च् (17) ज् (18) झ्
 (19) ट् (20) प् (21) त् (22) द् (23) ध् (24) न्
 (25) फ् (26) भ् (27) म् (28) य् (29) र् (30) ल्
 (31) व् (32) श् (33) स् (34) ष् (35) : (36) °

3. Tables of TCV values and Sathapatya of 36 distinct letters

Table -1

Of TCV values of 36 Distinct letters

C0 = serial number, COA = letter, COB= TCV of letter,

C1 = Frequency of occurrence of letter in sutras text,

C1A = Total frequency of letters in sutras text uptill this serial number,

C1B= total TCV of frequency of the letter in text of sutras,

C1C= total frequency of letters in text of sutras uptill this serial number.

C2 = Frequency of occurrence of letter in text of upsutras,

C2A = Total frequency of letters in text of upsutras uptill this serial number,

C2B= total TCV of frequency of the letter in the text of upsutras,

C2C= total frequency of letters in text of upsutras uptill this serial number.

C3 = Frequency of occurrence of letter in text of sutra and upsutra, both

C3A = Total frequency of letters in text of sutras & upsutras, both uptill this serial number,

C3B= total TCV of frequency of letter in the text of sutras and upsutras, both C3C= total frequency of letters in text of sutras and upsutras, both uptill this serial number.

Vowels 1 to 10

C0	C0A	C0B	C1		C1A	C1B	C1C	C2	C2A	C2B	C2C	C3	C3A	C3B	C3C
1	अ	1	67		67	67	67	51	51	51	51	118	118	118	118
2	इ	2	7		74	14	81	6	57	12	63	13	131	26	144
3	उ	3	6		80	18	99	8	65	24	87	14	145	42	186
4	ऋ	4	0		80	0	99	1	66	0	87	1	146	0	186
5	ए	6	12		92	72	171	10	76	60	147	22	168	132	318
6	ओ	7	2		94	14	185	5	81	35	182	7	175	49	367
7	ऐ	8	0		94	0	185	1	82	0	182	1	176	0	367
8	आ	2	15		109	30	215	12	94	24	206	27	203	54	421
9	ई	4	0		109	0	215	1	95	0	206	1	204	0	421
10	ऊ	6	10		119	60	275	5	100	30	236	15	219	90	511

Varga consonants 11 to 27

11	क्	1	8		127	8	283	6	106	6	242	14	233	14	525
12	ख्	2	1		128	2	285	0	106	0	242	1	234	2	527
13	ग्	3	3		131	9	294	5	111	15	257	8	242	24	551
14	ङ्	5	1		132	5	299	0	111	0	257	1	243	5	556
15	च्	2	9		141	18	317	7	118	14	271	16	259	32	588
16	ज्	4	1		142	4	321	2	120	8	279	3	262	12	600

17	अ	6	0		142	0	321	1	121	0	279	1	263	0	600
18	इ	3	2		144	6	327	1	122	3	282	3	266	9	609
19	ए	7	8		152	56	383	5	127	35	317	13	279	91	700
20	उ	4	9		161	36	419	14	141	56	373	23	302	92	792
21	य	5	0		161	0	419	1	142	0	373	1	303	0	792
22	र	6	3		164	18	437	7	149	42	415	10	313	60	852
23	ल	7	2		166	14	451	0	149	0	415	2	315	14	866
24	व	8	19		185	152	603	15	164	120	535	34	349	272	1138
25	श	5	7		192	35	638	5	169	25	560	12	361	60	1198
26	ष	8	4		196	32	670	1	170	8	568	5	366	40	1238
27	म	9	14		210	126	796	9	179	81	649	23	389	207	1445

Antstha, Ushmana and yama letters 28 to 36

28	य	1	24		234	24	820	20	199	20	669	44	433	44	1489
29	र	3	11		245	33	853	4	203	12	681	15	448	45	1534
30	ल	5	5		250	25	878	2	205	10	691	7	455	35	1569
31	व	7	10		260	70	948	9	214	63	754	19	474	133	1702
32	श	2	6		266	12	960	3	217	6	760	9	483	18	1720
33	स	3	3		269	9	969	6	223	18	778	9	492	27	1747
34	ष	6	6		275	36	1005	3	226	18	796	9	501	54	1801
35	.	9	4		279	36	1041	5	231	45	841	9	510	81	1882

36	:	13	4		283	52	1093	5	236	65	906	9	519	117	1999
Total	36	177	283			1093		236		906		519		1999	

Note

1. Formulation (चतुष्पीठ) TCV (चतुष्पीठ / Chatuspeeth) = $30 = 6 + 7 + 8 + 9$, summation value of four folds of H8 = TCV (अग्निकोण / Agnicone / North east angle)
2. $30 + 1999 = 2029$, parallel with factors of numbers range 1 to 720
3. $720 = 1 \times 2 \times 3 \times 4 \times 5 \times 6 = 8 \times 9 \times 10$
4. $A^6:12B^5$; $B^5 : 10C^4$; $12 \times 6 = 72$; $72 \times 10 = 720$; parallel with 720 coordinates of 12×10 creative boundary components of transcendental (5-space) boundary of self-referral (6-space) domain within creative (4-space) dimensional frame of 6 (4-space) dimensions of 6-space.

Manifestation of Chatuspeeth
in transcendental space
Paramvihom

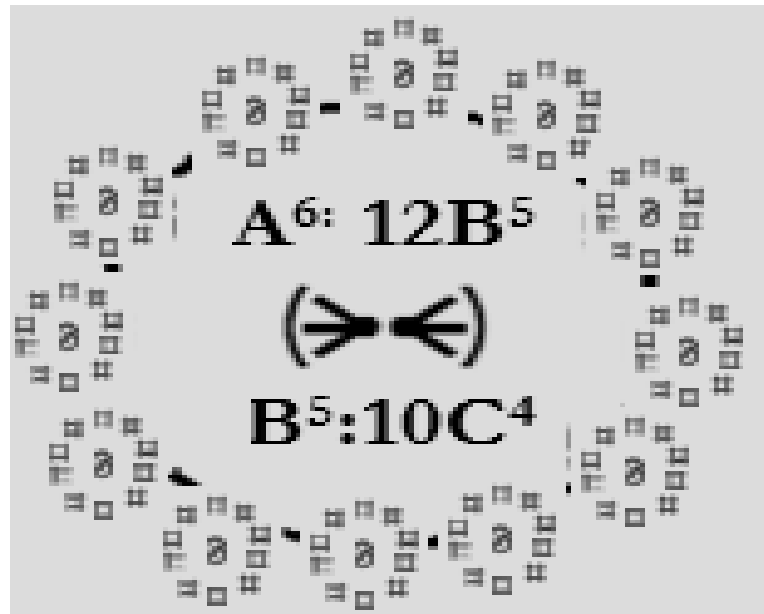
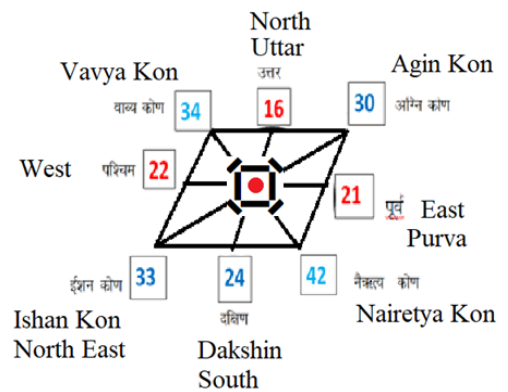


Table 2

Table of Sathapatya of 36 distinct letters of text of Ganita Sutras and Upsutras

SS	S	Sathapatya (geometric format)
1	अ	First vowel. 1-space dimensional frame, set up of single (-1 space dimension)
2	आ	Synthetic format of pair of 1-space formats.
3	इ	Second vowel. 2-space dimensional frame, set up of a pair of (0 space) dimensions.
4	ई	Synthetic format of pair of 2-space formats.
5	उ	Third vowel, 3-space dimensional frame, set up of triple (1 space) dimensions.
6	ऊ	Synthetic format of pair of 3-space formats.
7	ऋ	Fourth vowel, 4-space dimensional frame, set up of quadruple (2-space) dimensions.
8	ए	Sixth vowel, 6-space dimensional frame, set up of six (4-space) dimensions.
9	ओ	Seventh vowel, 7-space dimensional frame, set up of seven (5-space) dimensions.
10	ऐ	Eight vowel, 8-space dimensional frame, set up of eight (6-space) dimensions.
11	क्	First varga consonant. Linear order of linear order transcendence range (1, 2, 3, 4, 5).
12	ख्	Second consonant of first row of varga consonants. Spatial Boundary cover format.
13	ग्	Third consonant of first row of varga consonants. Solid domain.
14	ङ्	Fifth consonant of first row of varga consonants. Transcendental (5-space) base.

15	च्	First consonant of second row of varga consonants. Spatial order of spatial order transcendence range (2, 3, 4, 5, 6).
16	ञ्	Third consonant of second row of varga consonants. Creative (4-space) domain.
17	ञ्	Fifth consonant of second row of varga consonants. Self-referral (6-space) base.
18	ट्	First consonant of third row of varga consonants. Solid order of solid order transcendence range (3, 4, 5, 6, 7).
19	ण्	Fifth consonant of third row of varga consonants. Unity state (7-space) base.
20	त्	First consonant of Fourth row of varga consonants. Creative (4-space) order of creative order transcendence range (4, 5, 6, 7, 8).
21	थ	Second consonant of fourth row of varga consonants. Transcendental (5-space) Boundary cover format.
22	ड्	Third consonant of fourth row of varga consonants. Self-referral (6-space) domain.
23	थ्	Four consonant of fourth row of varga consonants. Unity state (7-space) origin.
24	त्	Fifth consonant of fourth row of varga consonants. Natural state (8-space) base.
25	प्	First consonant of Fifth row of varga consonants. Transcendental (5-space) transcendental order of transcendental range (5, 6, 7, 8, 9)
26	थ्	Four consonant of fourth row of varga consonants. Unity state (7-space) origin.
27	प्	Fifth consonant of fifth row of varga consonants. Eternity state (9-space) base.
28	य्	First Antstha letter. 1-space as outermost boundary cover.

29	ॠ	Second Antstha letter. 3-space as outermost boundary cover.
30	ॡ	Third Antstha letter. 5-space as outermost boundary cover.
31	ॢ	Fourth Antstha letter. 7-space as outermost boundary cover.
32	ॣ	First Ushmana letter. Spatial order transcendence and superimposition of spatial order of origin upon linear order of 3-space domain.
33	।	Second Ushmana letter. Solid order transcendence and superimposition of solid order origin upon spatial order of 4-space domain.
34	॥	Third Ushmana letter. Self-referral order transcendence and superimposition of self-referral order origin upon transcendental order of 7-space domain.
35	:	Transcendental flow along the Sathapatya format within creator's space (4-space).
36	.	Transcendental manifestation at origin of creator's space (4-space).

4. Sathapatya of letters of VGS text of integrated format

The integrated format of VGS text (of Sutras and Upsutras), is of following 29 sequential placements:

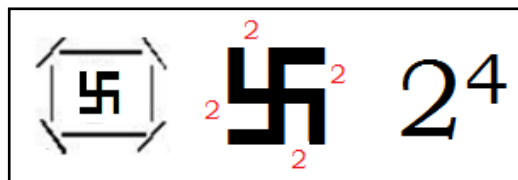
S.N	Placement of Sutra / Upsutra	S.N	Placement of Sutra / Upsutra
1	Sutra-1	16	Sutra-9
2	Upsutra-1	17	Upsutra-8
3	Sutra-2	18	Sutra-10
4	Upsutra-2	19	Upsutra-9
5	Sutra-3	20	Sutra-11
6	Upsutra-3	21	Upsutra-10
7	Sutra-4	22	Sutra-12

8	Upsutra-4	23	Upsutra-11
9	Sutra-5	24	Sutra-13
10	Upsutra-5	25	Upsutra-12
11	Sutra-6	26	Sutra-14
12	Upsutra-6	27	Upsutra-13
13	Sutra-7	28	Sutra-15
14	Upsutra-7	29	Sutra-16
15	Sutra-8		

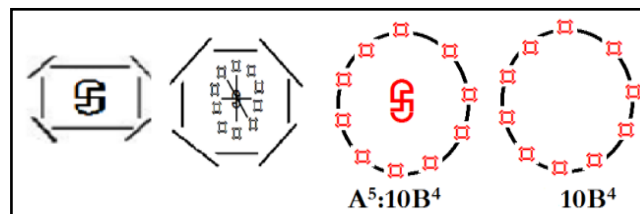
Tables hereunder depict Sathapatya of integrated format of VGS text of Sutras & Upsutras

5. TABLE - 3 Sathapatya of letters of Sutras and Upsutras

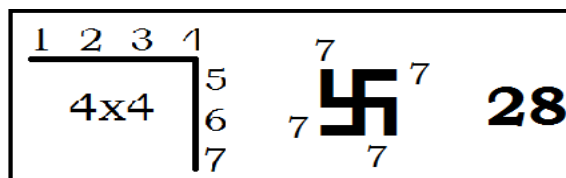
1. Sutra 1 letters 16



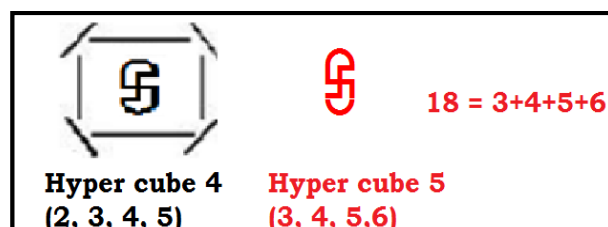
2. Upsutra 1 letters 10



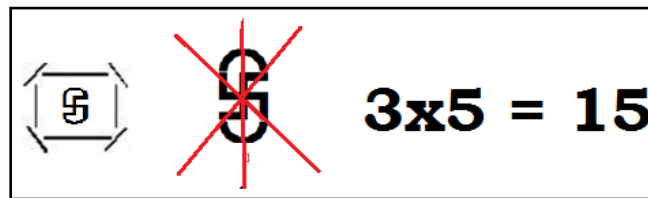
3. Sutra 2 letters 28



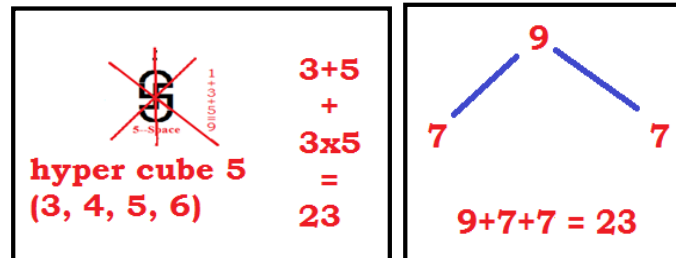
4. Upsutra 2 letters 18



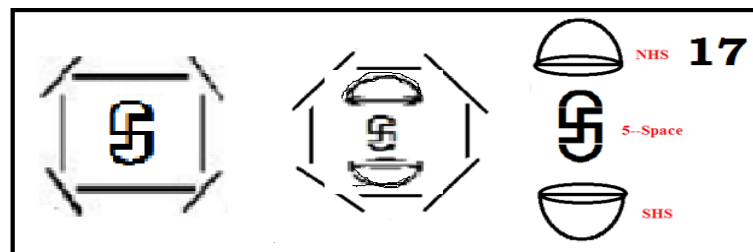
5. Sutra 3 letters 15



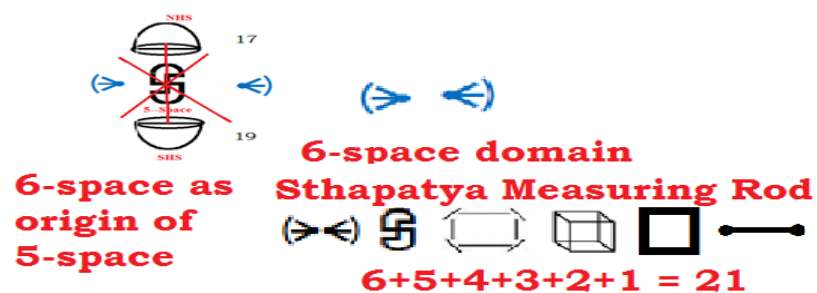
6. Upsutra 3 letters 23



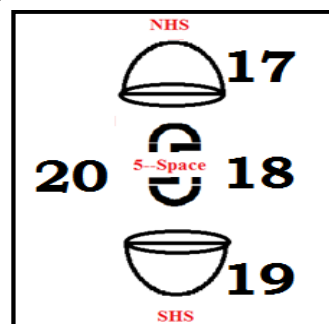
7. Sutra 4 letters 17



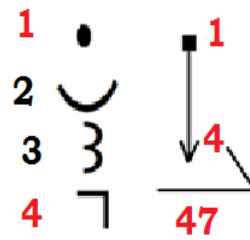
8. Upsutra 4 letters 21



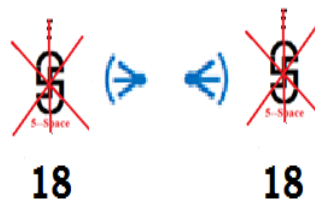
9. Sutra 5 letters 20, Sutra 6 letters 19



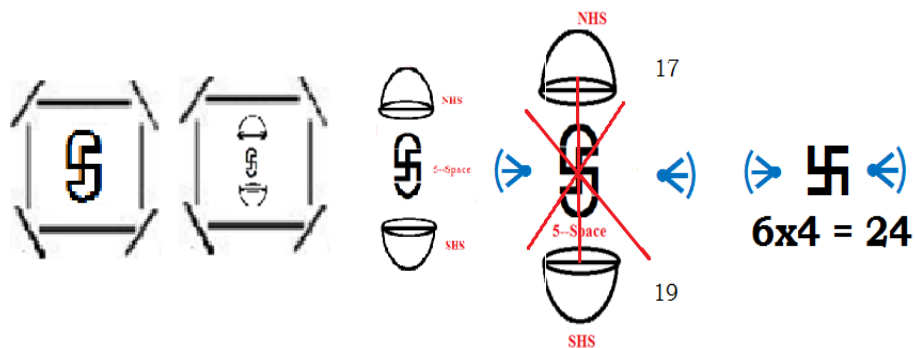
10. Upsutra 5 letters 8



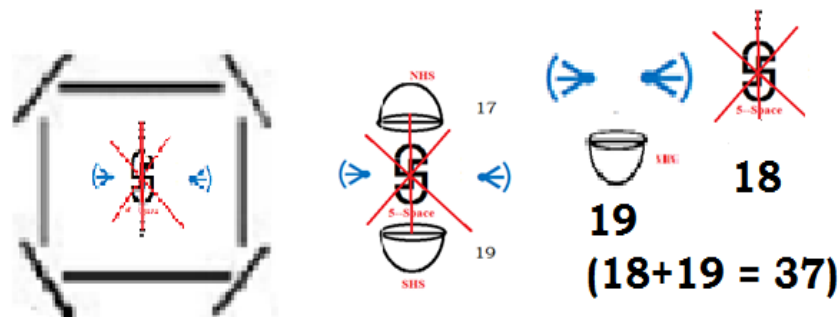
11. Upsutra 6 letters 18



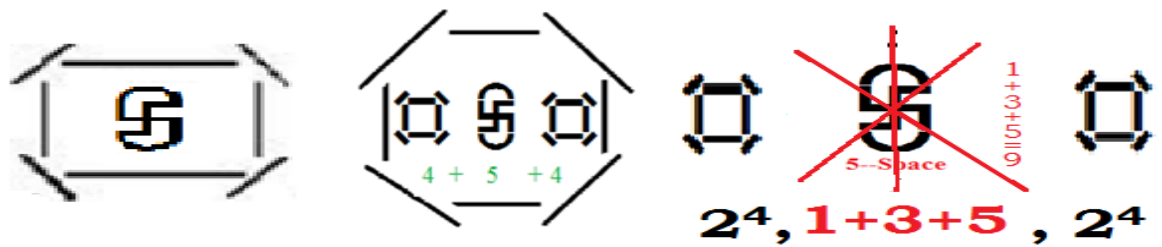
12. Sutra 7 letters 24



13. Upsutra 7 letters 37



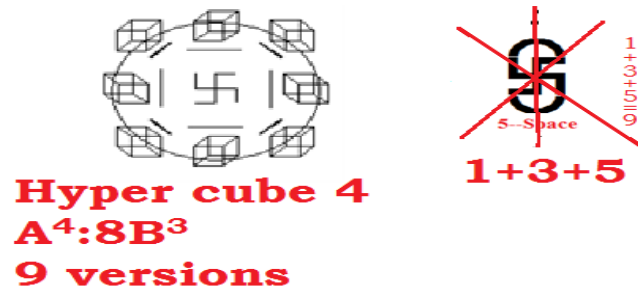
14. Sutra 8 letters 16, Sutra 9 letters 16



15. Upsutra 8 letters 16

5 (⇒ ⇐) 5
5+6+5 = 16

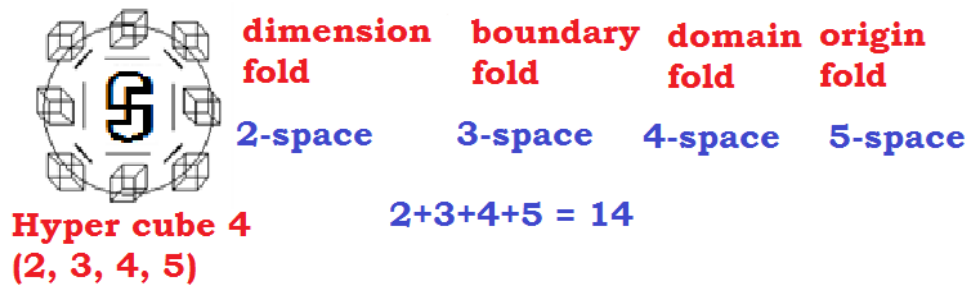
16. Sutra 10 letters 9



17. Upsutra 9 letters 11

+5 signature Geometry Body	+4 signature Geometry Body	+3 signature Geometry Body	+2 signature Geometry Body	+1 signature Geometry Body	0 signature body
-5 signature Geometry Body	-4 signature Geometry Body	-3 signature Geometry Body	-2 signature Geometry Body	-1 signature Geometry Body	

18. Sutra 11 letters 14

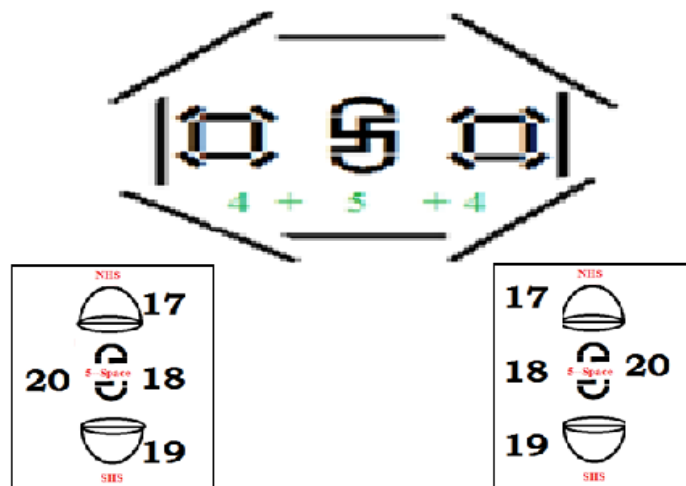


19. Upsutra 10 letters 16

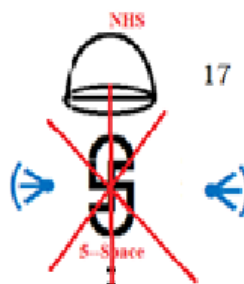
$\text{S} \Rightarrow \Leftarrow \text{S}$

$5+6+5 = 16$

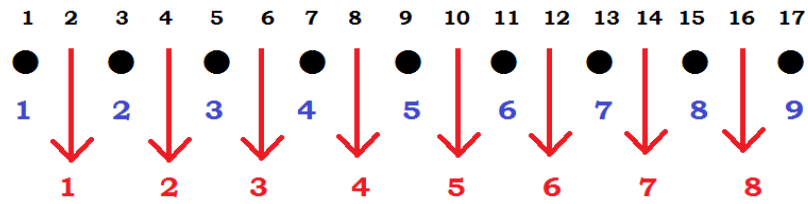
20. Sutra 12 letters 20, Sutra 13 letters 20



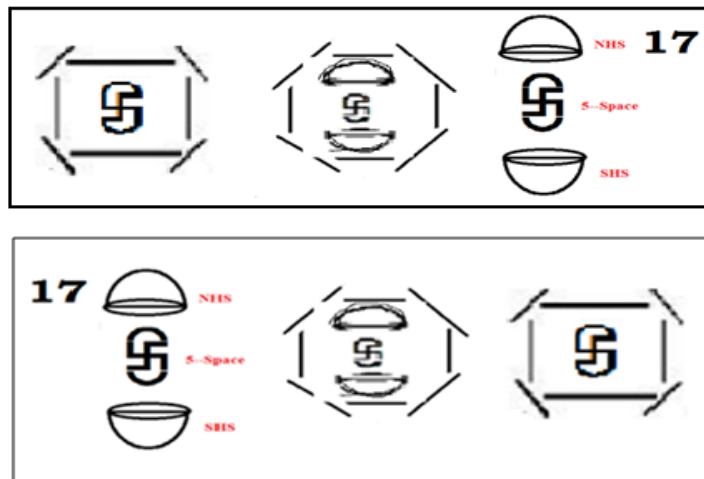
21. Upsutra 11 letters 17



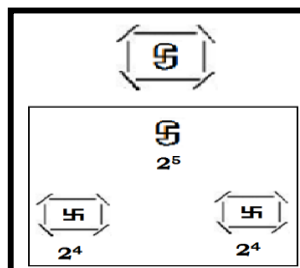
22. Upsutra 12 letters 9



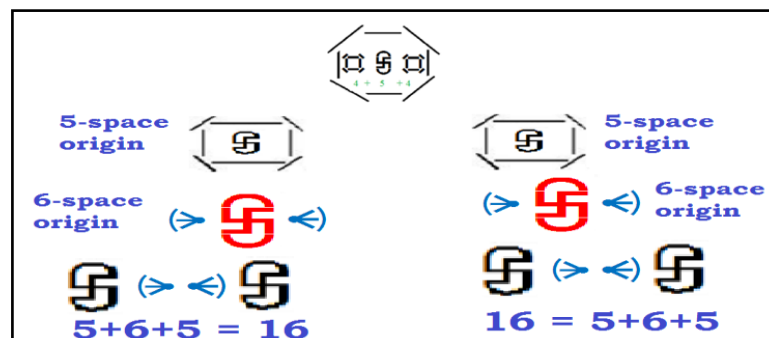
23. Sutra 14 letters 17



24. Upsutra 13 letters 32



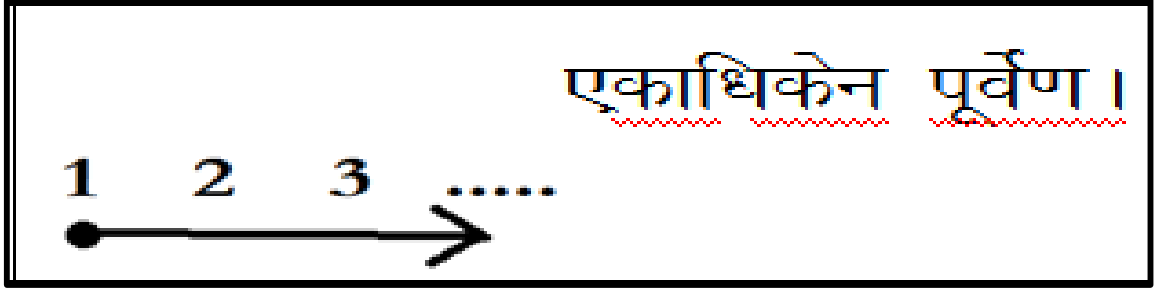
25. Sutra 15 letters 16, Sutra 16 letters 16



6. **TABLE - 4** Working rule Sathapatya of Sutras

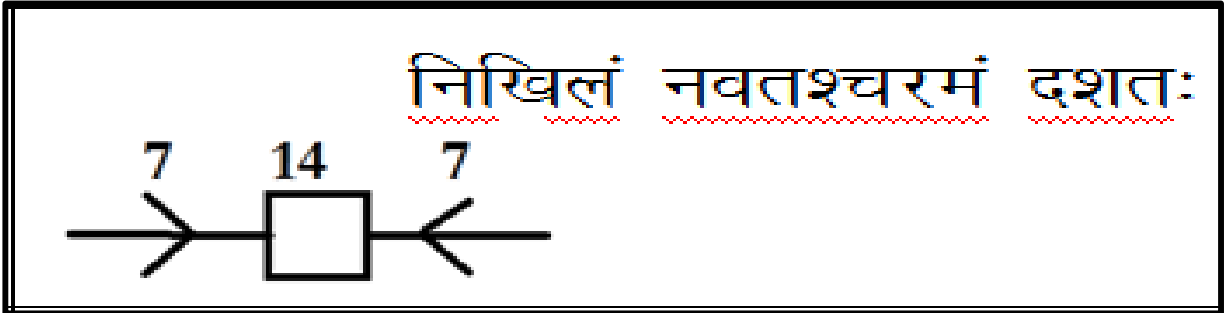
Ganita Sutra-1 एकाधिकेन पूर्वेण ।

Letters	Words	Syllables	TCV	VCV
16	2	8	75	23



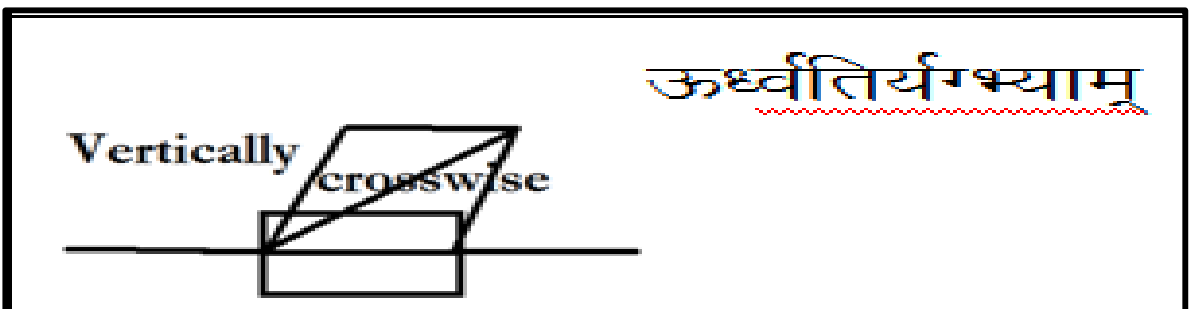
Ganita Sutra-2 निखिलं नवतश्चरमं दशतः ।

Letters	Words	Syllables	TCV	VCV
28	3	12	107	52



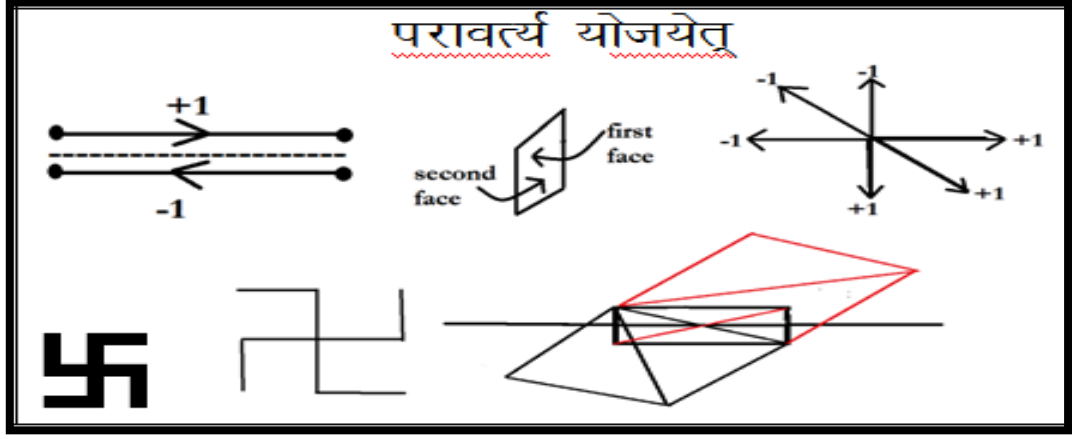
Ganita Sutra-3 ऊर्ध्वतिर्यग्भ्याम् ।

Letters	Words	Syllables	TCV	VCV
15	1	5	56	36

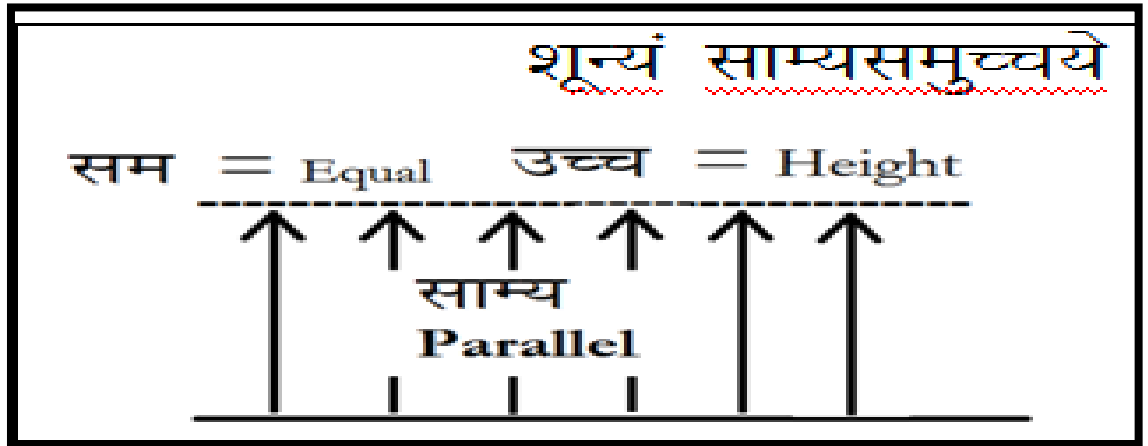


Ganita Sutra-4 परावर्त्य योजयेत् ।

Letters	Words	Syllables	TCV	VCV
17	2	7	52	32

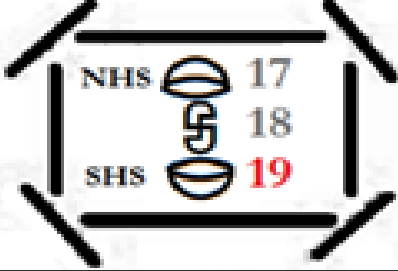
**Ganita Sutra-5** शून्यं साम्यसमुच्चये ।

Letters	Words	Syllables	TCV	VCV
20	2	8	71	42

**Ganita Sutra-6** (आनुरूप्ये) शून्यमन्यत् ।

Letters	Words	Syllables	TCV	VCV
19	2	8	76	22

(आनुरूप्ये) शून्यमन्यत् ।



अर्ध आकाश

$11+8 = 19$

TCV (अष्ट) = 11

H6 = h3+h3

Ganita Sutra-7 संकलनव्यवकलनाभ्याम् ।

Letters	Words	Syllables	TCV	VCV
24	1	10	85	33

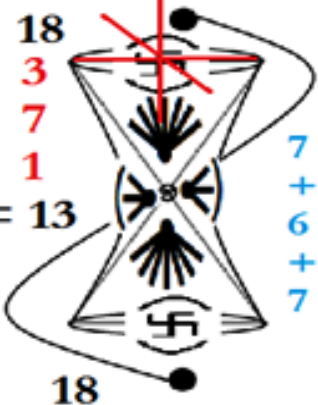
संकलनव्यवकलनाभ्याम् ।

TCV (व्यवकलन)

= 29 = 18+11

TCV (संकलन)

= 31 = 18+13



Ganita Sutra-8 पूरणापूरणाभ्याम् ।

Letters	Words	Syllables	TCV	VCV
16	1	6	68	26

पूरणापूरणाभ्याम् ।

Closed Interval

$[\text{---}] = [\text{---}] + [\text{---}]$

Closed Interval

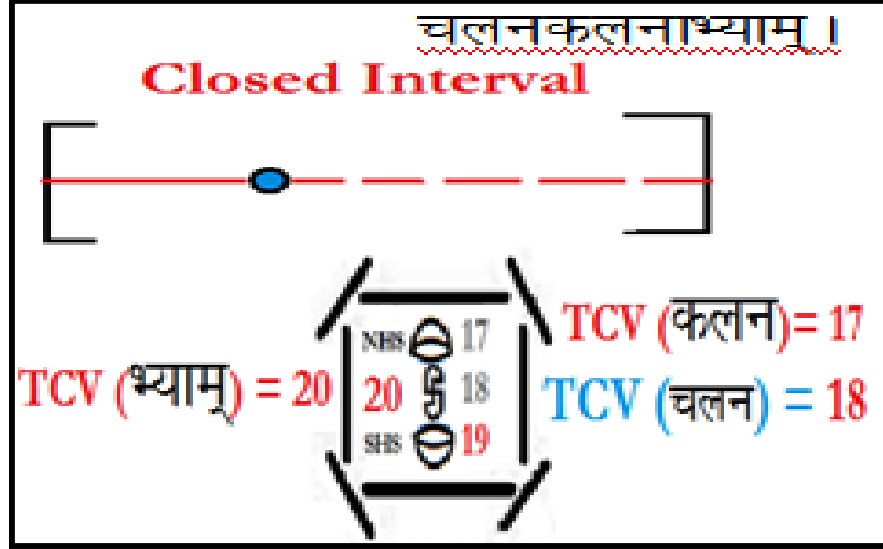
Half Closed Interval

$[\text{---}] + [\text{---}]$

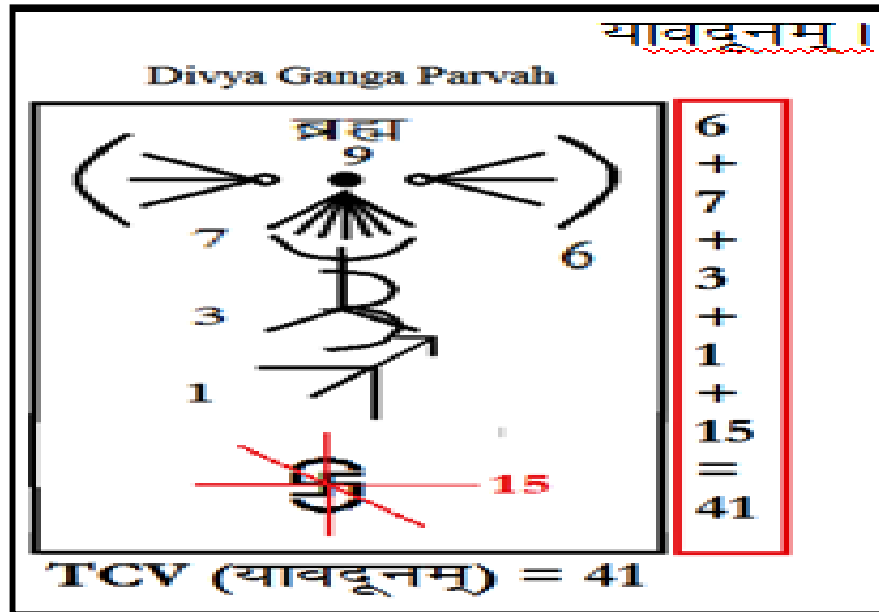
Half Closed Interval

Ganita Sutra-9 चलनकलनाभ्याम् ।

Letters	Words	Syllables	TCV	VCV
16	1	7	56	23

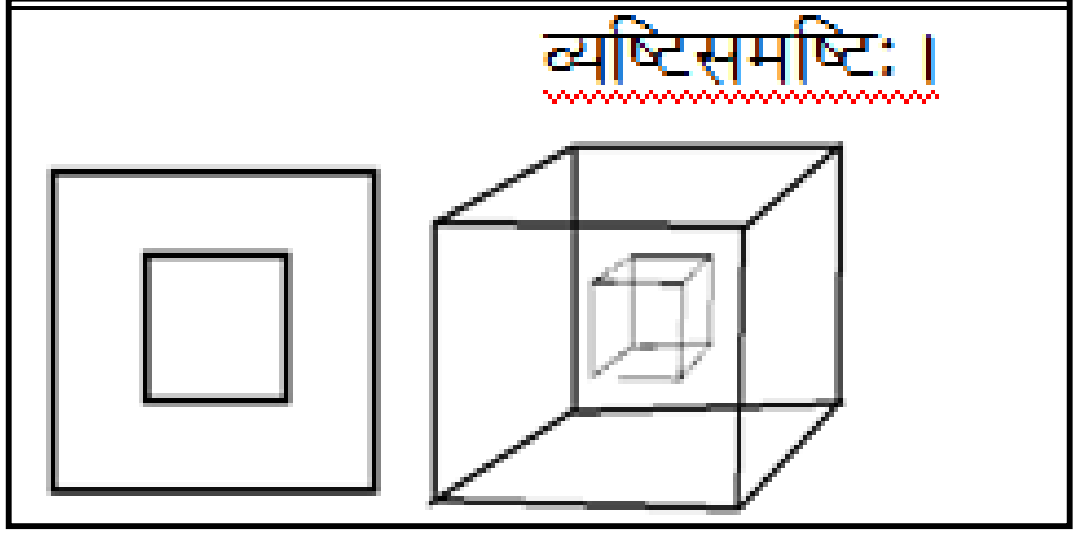
**Ganita Sutra-10 यावदूनम् ।**

Letters	Words	Syllables	TCV	VCV
9	1	4	41	18

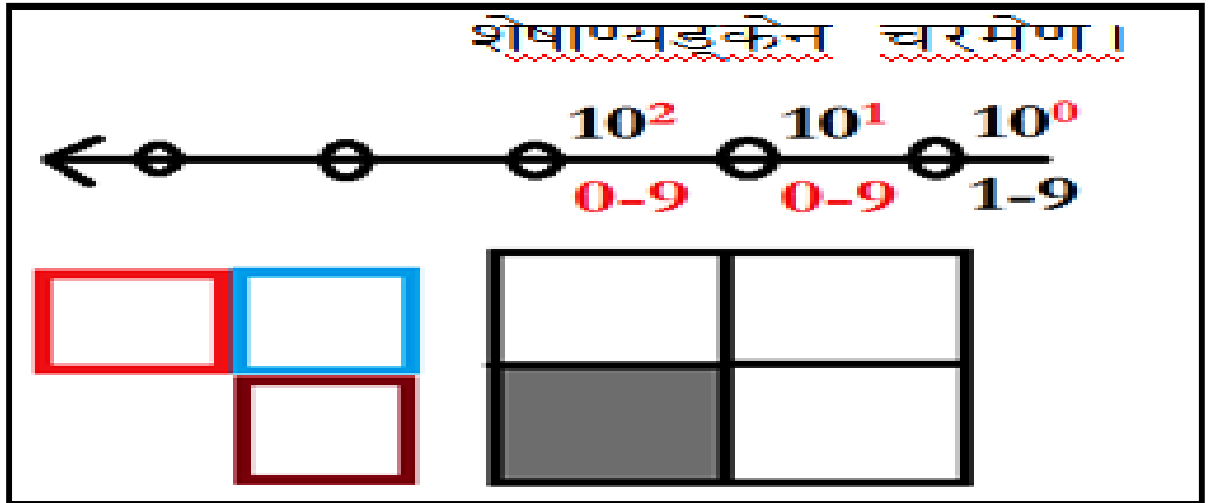


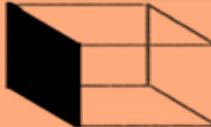
Ganita Sutra-11 व्यष्टिसमष्टिः ।

Letters	Words	Syllables	TCV	VCV
14	1	5	58	32

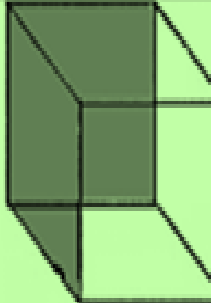
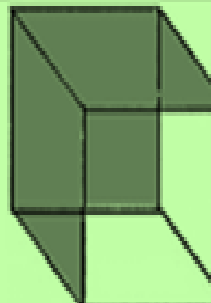
**Ganita Sutra-12 शेषाण्यङ्केन चरमेण ।**

Letters	Words	Syllables	TCV	VCV
20	2	8	75	43



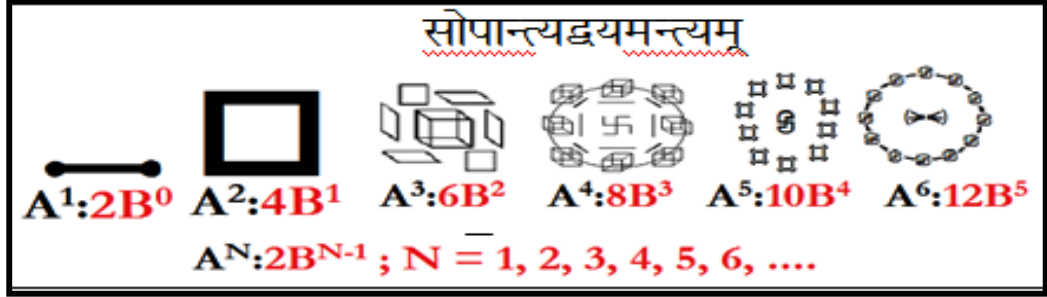
First sub cube	Second sub Cube
	
Structural components 8 corner points, 12 edges 6 surfaces, 1 volume = Total 27	Structural components 4 corner points, 8 edges 5 surfaces, 1 volume = Total 18
Third sub cube	Fourth sub Cube
	
Structural components 4 corner points, 8 edges 5 surfaces, 1 volume = Total 18	Structural components 2 corner points, 5 edges 4 surfaces, 1 volume = Total 12

Fifth sub cube	Sixth sub Cube
	
Structural components 4 corner points, 8 edges 5 surfaces, 1 volume = Total 18	Structural components 2 corner points, 5 edges 4 surfaces, 1 volume = Total 12

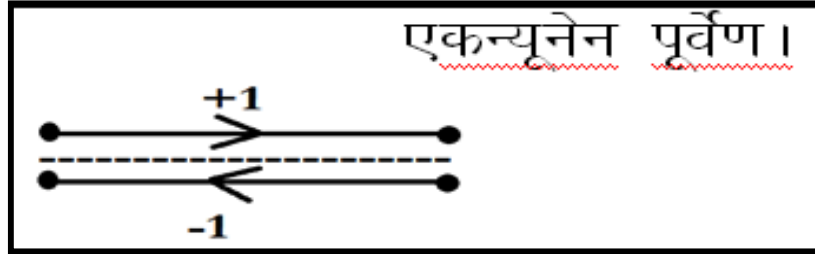
Seventh sub cube	Eighth sub Cube
	
Structural components 2 corner points, 5 edges 4 surfaces, 1 volume = Total 12	Structural components 1 corner points, 3 edges 3 surfaces, 1 volume = Total 8

Ganita Sutra-13 सोपान्त्यद्वयमन्त्यम् ।

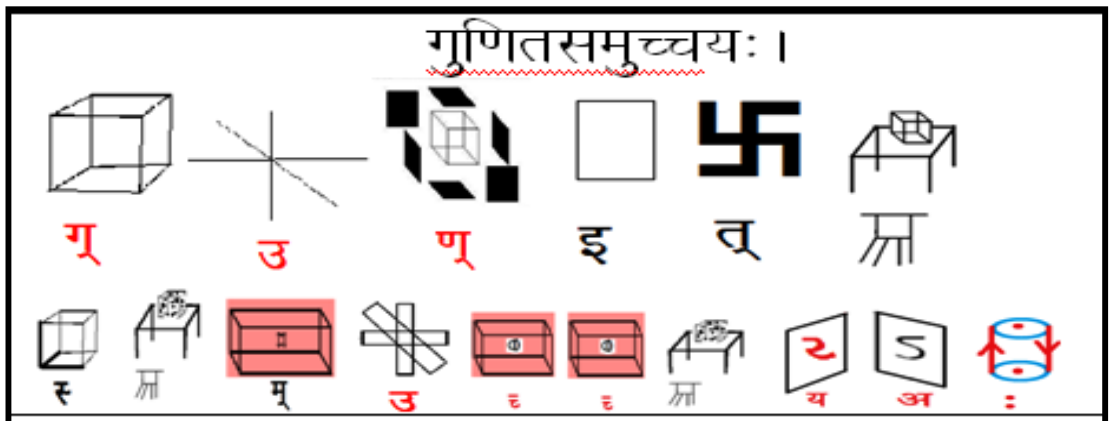
Letters	Words	Syllables	TCV	VCV
20	1	7	80	44

**Ganita Sutra-14** एकन्यूनेन पूर्वेण ।

Letters	Words	Syllables	TCV	VCV
17	2	8	84	14

**Ganita Sutra-15** गुणितसमुच्चयः ।

Letters	Words	Syllables	TCV	VCV
16	1	7	56	38



Ganita Sutra-16 गुणकसमुच्चयः ।

Letters	Words	Syllables	TCV	VCV
16	1	7	55	33

