

**Vedic Mathematics, Science & Technology
Teacher Course**

By Dr. S. K. Kapoor

Ganita Sutras 3, 4, 5, 6 & 7

This day the course focus is upon ‘Ganita Sutras 3, 4, 5, 6 & 7’. It four folds aspects being taken up are as follows:

- 49. General
- 50. Ganita Sutras 3, 4, 5, 6 & 7
- 51. Conceptual term of Ganita Sutras 3 to 7
- 52. Creator space

The values being covered are to be taught as lessons numbers 49 to 52 to the students of 4-space Vedic Mathematics, Science & Technology.

**LESSON-49
GENERAL**

- 1. There are 16 sutras and 13 upsutras.
- 2. Om is the transcendental source reservoir of virtues of Vedic knowledge and Vedic system.
- 3. End reach of these values and systems is ‘Pranava’. The synonym of Om.
- 4. The in between range is of 29 steps as of 16 Ganita Sutras and 13 Ganita Upsutras.
- 5. One way to approach this mathematical domain is as of steps :

- (I) Ganita Sutras 1, 2 and Ganita Upsutras 1, 2, which have been learning focus of class 9. Here arithmetic has been worked out on algebraic format. This algebraic format values are provided by Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9.
- (II) Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9 are the learning focus of this year subject of class 10. Here algebra is being approached along geometric format. The values of geometric format are provided by Ganita Sutras 8 to 11 and Ganita Upsutras 10 and 11.
- (III) Ganita Sutras 8 to 11 and Ganita Upsutras 10 and 11 are going to be the learning subject of next year class (class 11).
- (IV) Here geometry is going to be approached along the manifestation format, whose values would be supply by Ganita Sutras 12 to 16 and Ganita Upsutras 12 and 13.
- (V) Ganita Sutras 12 to 16 and Ganita Upsutras 12 and 13 are going to be the subject of learning during class 12. Here manifestations mathematics is going to be the learning focus. This focus is to be is going to be transcendence value which inherently of there own go self-referral and attain unity state.
- (VI) The learning focus here during this year is upon algebra values of Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9 permitting chase on geometric format of values supplied by Ganita Sutras 8 to 11 and Ganita Upsutras 10 and 11.
- (VII) As such the focus is to be upon the Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9 but at the same

time the general idea of Ganita Sutras 8 to 11 and Ganita Upsutras 10 and 11, also is to be head.

6. As such one shall visit and revisit the text of Ganita Sutras and upsutras particularly Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9.
7. These five sutras and 7 upsutras, as a range of 12 steps is going to make and integrated range:
 - (I) Ganita Sutra 3.
 - (II) Ganita Upsutra 3.
 - (III) Ganita Sutra 4.
 - (IV) Ganita Upsutra 4.
 - (V) Ganita Sutra 5
 - (VI) Ganita Upsutra 5
 - (VII) Ganita Sutra 6
 - (VIII) Ganita Upsutra 6
 - (IX) Ganita Sutra 7
 - (X) Ganita Upsutra 7
 - (XI) Ganita Upsutra 8
 - (XII) Ganita Upsutra 9
8. One may have pause here and take note that sutras wise range covers only until Ganita Sutra 7 but upsutras it take up till upsutra 9.
9. Ganita Sutras 8 and 9 as well have further integrated domain as:
 - (I) Ganita Sutra 8
 - (II) Ganita sutra 9
 - (III) Ganita Upsutra 8
 - (IV) Ganita Sutra 10
 - (V) Ganita Upsutra 9
 - (VI) Ganita Sutra 11
 - (VII) Ganita Upsutra 11


10. These are the broad features of integrated domain of Ganita Sutras and upsutras together covering range of present year (class 10) and of the sub sequent year (class 11). ■

LESSON-50

GANITA SUTRAS 3, 4, 5, 6 AND 7

1. Ganita Sutras 3, 4, 5, 6 and 7 permit chase in sequential steps as:
 - (I) Ganita Sutras 3 and 4
 - (II) Ganita Sutras 5 and 6
 - (III) Ganita Sutra 7.
2. Ganita Sutras 3 and 4 are of working rules 'vertically and crosswise' and 'transpose and unite'.
3. Ganita Sutras 5 and 6 are about the values of '0'.
4. Conceptually '0' is being approached as a zero value and as zero as well a structural whole number value.
5. Ganita Sutra 7 is a parallel operation of opposite values coming is to play simultaneously.
6. Ganita Upsutras 3 to 9 permit chase as :
 - (I) Ganita Upsutra 3 of the working rule of simultaneously handling of a pair of different values unit permitting their beginning point to be at one's placement, to being the same placement and in between ranges unfolding proposnality
 - (II) Ganita Upsutra 4 is about processing range being restricted up till 7 steps only
 - (III) Ganita Upsutra 5 is about 'osculator format'.
 - (IV) Ganita Upsutras 6 and 7 are two phases of reach at the spatial format.
 - (V) Ganita upsutras 8 and 9 approach and value by classifying it as a paired of, and has of feature of complement.
7. These broad features of Ganita Sutras 3 to 7 and Ganita Upsutras 3 to 9 deserve to be imbibed as independent

processing steps and same also deserve to be imbibed as single integrated range of processing steps.

8. These values and features of this processing step change is to be firstly as of algebraic format for arithmetic operation , and there after same are to be glimpse and imbibe as value of algebra accepting geometric format supplied by subsequent sutras and upsutras.
 9. One shall have a pause here and permit the transcendence mind to glimpse these features along their geometric format bringing us face to face with the grand design of Nature as that dimensional frame and artifices of number run parallel to each other.
 10. With it the seed though of arithmetic, algebra and geometry being different aspects of the values of same mathematics domain stand planted and imprinted in the intelligence field for whose perfection the present course of learning is been under taken by the Sadhakas/students of Vedic Mathematics (as well as by the Sadhakas /students glimpsing bases base mathematics values for chase of the values of the discipline of Vedic Mathematics, Science & Technology).
 11. One shall sit comfortably and permit the transcending mind to glimpse and imbibe above feature and values of phased learning steps of Vedic Mathematics.
- 

LESSON-51

CONCEPTUAL TERM OF GANITA SUTRAS 3 TO 7

1. Ganita Sutras 3 to 7 are availing following conceptual terms:
(I) Udarva , triyaka and bhayam

- (II) Pravartya and yogait
- (III) Sunyam, samya and samuchyai
- (IV) Anrupeyai, sunyam and anayat
- (V) Sankalan and vyavakalan

2. These 13 technical and conceptual terms deserve to be glimpsed for imbibing of their values.
3. One shall visit time and again these terms to have complete imbibing their values and to have proper appreciation of working rule of these sutras.
4. The first reading of these terms shall be leading us to their initial value as under:

(I) Udarva

Simple English rendering of *udarva* is 'upward'.

It is vertically upward. It is of a directional format. It may be appreciated in the context 'horizontal'.

Horizontal is along the floor surface. Vertically upward is along the wall.

(II) Triyaka

Simple English rendering of *triyaka* is 'crosswise'/diagonal wise. It, in the context of in reference to vertically upwards, means along the diagonal of the wall. However independently, triyaka may be along the diagonal of a floor surface, are even along the any surface.

Udarva and Triyaka, together will takes us to a vertical plane (wall), as a vertical line (side) and as a diagonal, a setup which may also yield an 'angle'.

(III) Bhayam

Bhayam, in a literal sence is of value for simultaneous role of a pairs / dual entities.

Udarva/triayaka, bhayam takes us to 'vertically and crosswise availability.

Ganita Sutra 3 text, that way, takes us to 'vertically and crosswise' chase format, a vertical plane availability interms of its upward side and it diagonals, both being available.

(IV) Pravartya

Prayartya literal means to reverse/transpose/to have in opposite orientation

We know that a line has a pair of orientations. A line with a pair of end point (a, b), if has first orientation from 'a to b', then the second orientation would be from 'b to a'.

The step to reverse/ transpose/to reach other orientation in the context of line would means if initially setting is of orientation from a to b , then as a pravartya step the orientation to be reversed in the setting of b to a.

(V) Yogait

Yogait literal means to unite.

In the context and in reference pravartya it would mean that in the first phased, a step is to taken to reverse the orientation in second phase, step would be taken to unite the attained reversal with the original set up.

One may have pause here and take note that taking original set up of a line as of a orientation a to b, as a first step, it would be reversed and to made b to a, then the same to be united/superimposed/made in unison with the original orientation a to b.

One may further have a pause here and take note that the superimposition as 'b to a' upon original set up 'a to b', in a way will lead to a superimposed state.

Amongst others, one of the feature of this emerging format would be the value of (-1) being superimposed upon value (+1).

A step head, it will be bringing us face to face with the setup of +1 space body getting superimposed upon -1 space body.

The difference value $[(+1)-(-1)] = 2$, in its generality will takes us to (n, n-2) getting superimposed upon each other.

Transcendental code values of pair of formulation (udrahv. Triyaka) as a value pair (23, 21) will bring us face to face with the continuity of organization formats of Ganita Sutras sequential order.

One may have pause here and take note that the above features help us have insight about pure and applied values of Ganita Sutras 3 and 4.

(VI) Sunyam

Formulation sunyam accepts English rendering as 'zero value reach'.

Conceptually 'zero', as a value for the valueless 'void' and as a whole number value like whole range of whole numbers, brings us face to face with the basic of values systems chase features.

Zero as a place value, in the context of ten place value system, and as 'zero', a value reseeding '1' and as a value '10' following value 9, as well as zero as index value, individually as well as indifferent frequency marking appearance as 10, 100, 1000 etc etc, bring us face to face with the initiation required for glimpsing and comprehending and imbibing sunya as sunyam.

In the context it would also be relevant to take note that formulation sunya accepts transcendental code value 18 while formulation sunyam accepts transcendental code value 27.

It would be relevant to take note that cube accepts structural components 27 and while the same synthesizes with another cube, the contribution of second cube remains only of 18 components.

Further it would also be relevant to take note that formulation sunya is availing five letters of which 3 are consonant and remaining two are vowels and the ratio (27:18) is parallel to the ratio (3:2)

The triples consonants or first ushmana letter, first anthasatha and last consonants of fourth row of verga consonants. The pairs of vowel are the first vowel and elongated third vowel.

It would be blissful to take note that each of these 5 letters specifically contributes their respective values and geometric format for the values and format of the formulation sunya.

It is in the light of this range of values and feature of formulation sunyam that we have to reach at the role of zero space in the range of dimensional spaces. In the context it would also be blissful to glimpse and imbibe the value of zero space body of hypercube 0. It would also be relevant to take note like all other space zero space as its distinct zero space content full of zero space content structure which manifest zero space domain of hypercube 0 and this domain place it role as 0 space in the role of dimensions, 0 space in the role of boundary, 0 space in the role of domain and 0 space in the role of oaring.

Also that 0 space in the role of base, format, state and natural spot from the Brahman reservoir are the values and features which deserve to be glimpsed and comprehended well by the sadhkas. From nothingness to voided to de-voided and the step to divoide are the features and values whose imbibing will perfect the intelligence.

(VII)Samya

Samya literal means 'parallel'.

The parallel values make the things samya. The concept of parallel, in reference to sunyam is one of the basic values whose comprehension shall be complete to have full imbibing of the value of sunyam.

(VIII) Samuchyai

The formulation samuchyai deserve to chase in terms of sub formulation being availed by the formulation.

The sub formulation being availed by the formulation are (I) sum which mean equal, (II) ucch, means high and (III) chaye means choiced.

Equally choiced as per the high reach, in the context of samya (parallel) and sunyam (reach of value), together will help comprehend and imbibe the values of the Ganita Sutra 5.

Equal upward parallel lines as high reach points for the pair of flow stream will help format sunyam as a value.

(IX) Anrupeyai

Anrupeyai literal means of the same form and frame. It brings in proportionality and summity.

(X) Sunyam

(XI) Anayat

Anayat means to bring/that come in/that flows out.

Ganita Sutras 5 and 6 deserve to be red together these are to be comprehend simultaneously, there shall be a one sitting glimpse for both set up of value of '0'.

One shall sit comfortably and permit the transcending mind to continuously remain in prolonged sitting of Trans to transcendence through structure 0-space content to its affine state to face to face with 0 as an absolute value of oneness.

(XII) Sankalan

Sankalan literal means to add, to compile, to pull in, and to be in a common reservoir.

(XIII) Vyavakalan

Vyavakalan literal means to be of opposite orientation of above value and feature of sankalan.

The individual value and features of individual and combined formulation of Ganita Sutra 7 may well be appreciated in the context of sequential choice of letter of the formulation of this text and the individual value and format accepted by these formulations.



LESSON-52

CREATOR'S SPACE

1. Vedic system accepts 4-space as creator's space.
2. Space, here, is approached within in terms of a dimensional frame of quadruple spatial dimensions.
3. 3-space accepts a dimensional frame of 3 linear dimensions while 4-space accepts four spatial dimensions.
4. Hypercube 4 is the representative regular body of 4-space.
5. Hypercube 4 is the fourth member of the sequence of hyper cubes N , ($N = 1, 2, 3, 4, \dots$).
6. The sequence of hypercube is the sequential emergence along the creation format of 4-space.
7. The creation format of 4-space is the format feature and value of Idol of Lord Brahma.

8. Lord Brahma is the four head Lord.
9. Each head of Lord Brahma is equipped with pair of eyes.
10. Lord Brahma is sits gracefully on the lotus seat of 8 petals.
11. Within cavity of heart of Lord Brahma is the seat of transcendental Lord, Lord Shiv.
12. Lord Shiv is the five head Lord with three eyes equipped in each head.
13. Lord Brahman mediates within cavity of his own heart upon transcendental Lord Shiv.
14. With the grace of Lord Shiv, Lord Brahma multiples as ten Brahma.
15. Ten Brahmas manifests creative boundary of transcendental domain (5-space).
16. The format feature and value of idol of Lord Brahma are parallel to format feature and values of hypercube 4, a representative regular body of 4-space, with 2-space in the role of dimensions, 3-space in the role of boundary, 4-space in the role of domain, 5-space in the role of origin.
17. Transcendence take placed at the origin at the hypercube 4 and the four fold manifestation layers (1, 2, 3, 4, 5) extends into a 5 folds transcendence ranges (2, 3, 4, 5, 6) of summation values $(2+3+4+5+6) = 20$.
18. Value 20 permit reorganization as $20 = 10+10$.
19. It further accepts reorganization as $(0+1+2+3+4) + (0 = 1+2+3+4)$ parallel to pair of transcendence ranges of zero order.
20. One shall sit comfortably and permit the transcending mind to glimpse and imbibe the above format feature value of creator's space, its creation format parallel to idol of Lord Brahma and transcendence at the origin

leading to a transcendence range of spatial order which splits into a pair of transcendence ranges of zero order.

21. One shall sit comfortably and permit the transcending mind to take note the transcendence ranges (0, 1, 2, 3, 4) and four fold manifestation layers ranges (1, 2, 3, 4) leads to equal summation value (10).
22. One may have pause here and take note that hypercube 3 as 4 folds manifestation layers (1, 2, 3, 4) leads to summation value (10).
23. Further the hypercube 2 as 4 folds manifestation layers (0, 1, 2, 3) of summation value 6 on transcendence leads to a transcendence ranges (0, 1, 2, 3) of summation value (10) equal to summation value of four fold manifestation layers of hypercube 3.
24. It would be blissful to take note that the in case of cube place the role of origin and while in case of square 4 space play the role of base fold.
25. It would be blissful to take note that during manifestation, domain fold, origin fold, and base fold remains in-compactified form and these sequentially unfold.
26. It would be blissful to take note that this sequential unfolding shall be having a reach from hypercube 2 to hypercube 3 without disturbing the summation value write up till a reach for the square at its base fold.
27. It would be blissful to take note that formulation Varga and Ghan, both accepts equal transcendental code value '14' because of the above unique format feature value of the creator's the space (4-space) as base fold of hypercube 2 and as origin fold of hypercube 3.

