

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

By Dr. S. K. Kapoor

Ganita Sutra 8

This day the course focus is upon ‘Ganita Sutra 8’. It four folds aspects being taken up are as follows:

- 93. Puranpurnabhvam
- 94. Simple English rendering of the text
- 95. Upanishadic expression
- 96. Formulation purnam and apurnam

The values being covered are to be taught as lessons numbers 93 to 96 to the students of 4-space Vedic Mathematics, Science & Technology.

LESSON-93

PURANPURNABHVAM

1. Being sutra 8 the values of number 8 get associated with this sutra.
2. The text of Ganita Sutra 8 is a composition of 16 letters.
3. Being a text of 16 letters of value of number 16 as well gets associated with this sutra.
4. It may be relevant to take note that Ganita Sutras (1, 9, 15, 16) and Ganita Upsutra 10 as well are composition of 16 letters each.

5. Further, the text of Ganita Upsutra 13 is a text of $16+16 = 32$ letters.
6. Transcendental code value of text of Ganita Sutra 8 comes to be of 16 values range (5, 6, 3, 1, 7, 1, 5, 6, 3, 1, 7, 2, 8, 1, 2, 9).
7. The summation of this 16 values range of transcendental code value of text of Ganita Sutra 8 comes to be:
 $(5 + 6 + 3 + 1 + 7 + 1 + 5 + 6 + 3 + 1 + 7 + 2 + 8 + 1 + 2 + 9) = 67$.
8. Vedic code value of text of Ganita Sutra 8 is a values range (1, 0, 3, 0, 5, 0, 1, 0, 3, 0, 5, 0, 4, 1, 0, 5).
9. The summation value of this range of 16 Vedic codes value of the text of Ganita Sutra 8 comes to be:
 $(1 + 0 + 3 + 0 + 5 + 0 + 1 + 0 + 3 + 0 + 5 + 0 + 4 + 1 + 0 + 5) = 28$.
10. Brahman code value of the 16 letters of text of Ganita Sutra 8 comes to be value range as (5, 10, -5, -15, 15, -15, 5, 10, -5, -15, 15, -10, 20, -15, -10, 25).
11. The summation value of Brahman range values of the text of Ganita Sutra 8 comes to be:
 $(5 + 10 - 5 - 15 + 15 - 15 + 5 + 10 - 5 - 15 + 15 - 10 + 20 - 15 - 10 + 25) = 15$.
12. One shall sit comfortably and permit the transcending mind to glimpse and imbibe above values of the text of Ganita Sutra 8.
13. From above , it emerges that following values gets associated with the text of Ganita Sutra 8:

(I)	Sutra number	8
(II)	Letter of the text	16
(III)	TCV values	67
(IV)	VCV values	28



LESSON-94

SIMPLE ENGLISH RENDERING OF THE TEXT

14. Simple English rendering of text may be: ‘complete and in complete’
15. Further, with a focus, as per the value, it may be: ‘full and not full’.
16. Counts wise values translation of the text will be: ‘infinity and its split as infinity and infinity’.
17. Geometric format wise it is to be of expression of: ‘closed interval as closed interval and half closed interval’.
18. It also may be: ‘open interval as open interval and half open interval’.



LESSON-95

UPANISHADIC EXPRESSION

Om Puranamadah Purnamidam Purnat Purnamodacyatei

Purnasya Purnamadaya Purnameivavshishyatei

Simple English rendering for this expression is: ‘Om. That (Supreme Brahman) is infinite, and this (Conditioned Brahman) is infinite. The Infinite

(Conditioned Brahman) proceeds from the Infinite (Supreme Brahman). (Then through knowledge), realizing the infinitude of the infinite (conditioned Brahman), it remains as the infinite (unconditioned Brahman) alone'. (Brhadaranyaka upanisad.5.5.1)



LESSON-96

FORMULATIONS PURNAM AND APURNAM

19. Formulation Purnam (full / complete / infinity) as a value of 'open interval' deserve to be visited and to be revisit and time and again, as the modern mathematics is trying to tame this concept to reach at appropriate processing system for it and the discipline of topology has put itself in the shape and state which require rethinking about its conceptual approach at its very foundation.
20. Vedic system approach simultaneous availability of *Purnam* and *Apurnam* which is of processing format of following features values:
 - (I) Hypercube n is of $(n+1)$ version.
 - (II) $(n+1)^{\text{th}}$ version is free of all $2n$ components of boundary of domain of hypercube n .
 - (III) This state of n space domain is an n space contained lump (domain fold) without any restriction, what so ever because the boundary fold.
21. Illustratively, 1-space 3 geometries range and parallel to it, there are 3 versions of hypercube1.

22. Open interval is the 3rd version of hypercube 1.
23. Open interval is a body of zero signature geometry of 1-space.
24. Open interval permits a split as open interval and half open interval.
25. The open interval part of open interval will again permit it split has open interval and half open interval
26. And this, to continue adds infinitum.
27. Let us have a pause here and revisit at the split organization of open interval has open interval and half open interval.
28. The distinguishing feature of two parts, namely open interval and half open interval is the end point available for half open interval.
29. Let us have a pause and to take note that such a point is available anywhere in between the open interval but for the end point of the open interval itself.
30. This availability of the point is of the structural order of zero space in the role of dimensions of 2-space marking its presence in the set up of the open interval being of negative dimensional order.
31. One may have a pause here and to take note that zero space is a unique set up whose boundary consists of zero number of negative linear spaces.
32. It is this feature which makes presence of zero space bodies (points) marking their presence everywhere in between the open interval but are not manifesting themselves as end points.
33. It is because of it that transcendence is permissible at any of the in between point of the interval, as a seat of origin of a fluctuating origin.

34. It is this transcendence feature, which sets point in a dynamic state and their by, it place the role of dimension of 2-space, which manifests that way the origin of 1-space and hence the origin fold of hypercube1.
35. The transcendence takes to the base fold which for hypercube 1 is 3-space set up.
36. This leads to a five folds transcendence range (-1) space as dimensional fold, 0-space as boundary fold, 1-space as domain fold, 2-space as origin fold and 3-space as base fold.
37. One may have a pause here and to take note that 2-space, as a surface, is of a pair of faces which may be designated as a value pair (-2 +2).
38. One may further have a pause here and to take note that the face of a surface with value (-2) is towards 1-space while the face (+2) is towards 3-space.
39. One may further have a pause here and to take note that the summation value of the emerging transcendence range (-1, 0, 1, 2, 3) is: $(-1 + 0 + 1 + 2 + 3) = 5$.
40. One may further have a pause here and to take note that 2-space has five geometries range and parallel to it, there are five versions of hypercube 2, and that the fifth version parallel to zero signature geometry of hypercube 2 is 2-space domain free of its all restrictions because of its linear order boundary components.
41. One may have a pause here and to take note that in the process there has been reach from 0 signature geometry of 1-space to 0 signature geometry of 2-space, and parallel to a reach from 1-space domain free of

restriction of a boundary to 2-space domain free of restriction because of boundary.

42. One may have a pause here and to take note that this has a feature of processing along the Sathapatya measuring rod and same is to maintain sequential ordering.
43. One may further have a pause here and to take note that Sathapatya measuring rod are sequential measuring rod of synthetic set up [(hypercube 0 and hypercube 1), (hypercube 0, hypercube 1 and hypercube 2), (hypercube 0, hypercube 1, hypercube 2 and hypercube 3), (hypercube 0, hypercube 1, hypercube 2, hypercube 3 and hypercube 4) ...].
44. It would be relevant to take note that :
 - (I) Hypercube 0 has single version parallel to single geometry of zero space.
 - (II) Hypercube 1 has three versions, parallel to 3 geometry of 1-space.
 - (III) Hypercube 2 has five versions, parallel to 5 geometry of 2-space.
 - (IV) Hypercube 3 has 7 versions, parallel to 7 geometry of 3-space.
 - (V) Hypercube 4 has 9 versions, parallel to 9 geometry of 4-space.
 - (VI) And so on.
45. The sequential availability of boundary free space contents lumps as domains folds is one feature.
46. The different role which space content as domain folds have to play is another feature.

47. The simultaneously manifestation of four constitute dimensional space contents as hypercube manifestation layer is another feature.
48. This feature bring to focus the specific interrelationship role of third member of four sequential member set up becomes of a central role as much as that here the space contained as domain fold is playing the role of a dimensional fold.
49. In the context of 1-space, 2-space, 3-space and 4-space have sequential 4-spaces with manifestation of their contents put 3-space content in the role of domain fold.
50. As such 3-space domain, in the role of domain fold brings us face to face with a situation like cube within a cube / 3 dimensional space chase within 3-space.
51. This further, brings us face to face with 3-space having a 7 geometries range and parallel to it there been 7 versions of cube as hypercube 3 but cube permits its split into eight sub cubes.
52. One may have a pause here and to take note that while 7th geometry of 3 space and parallel to it a 7 versions of cube is boundary free but the split has eight sub cubes makes a split of different generic in which the eight sub cube is further free from the very dimensional order and it simply behaves has a space contents with a structural sustaining frame of a 3 dimensional frame of half dimensions (of both linear order and also of a spatial order).
53. One may have a pause here and have a fresh visit of this set up of a space of eight sub cube.
54. Seven structural components sustaining eight sub cube are :

- (I) Origin located at a corner contributing one structural component.
 - (II) Three (half) edges of the set up of original cube contributing, three structural components.
 - (III) Three (half) surface plate of the original cube, contributing another 3 structural components.
 - (IV) Eight sub cube itself becoming the eighth but sustained structural component.
55. One may have a pause here and to take note that the above set up. Amongst other has the following glaring feature :
- (I) Origin is located at the corner point.
 - (II) 3 half linear dimensions, together with the origin at the corner constitute a 3 dimensional frames of half dimensions.
 - (III) 3 half surface plate together with origin at the corner point constitute a three dimensional frames of 3 half spatial dimensions.
 - (IV) The origin point is a compactified set up as origin of linear dimensional frame, as well as the origin of a spatial dimensional frame.
 - (V) 2-space play the role of origin of 1-space, 3-space play the role of origin of 2-space and both are compactified.
56. Each of the eight sub cubes, can be taken as the eighth sub cubes.
57. Let us have a pause and have a further split for each of eight sub cubes as eight sub-sub cubes for each sub cube.
58. The emerging 64 sub sub cubes with 8 structural frames set up will make a set up of 512 components.

59. One may have a pause here and to take note that Ganita Sutra and upsutras text avail in all 519 letters of which eight letters of sutra 6 are dormant and one letter of Ganita Sutra 8 is in an un-manifest state and their by the text of Ganita Sutra and upsutras, as such become a lively text of value 512.
60. One may have a pause here and to take note that the internal structural of 3-space domain permits simultaneous chase in terms of a linear 3 dimensional frames as well as a spatial 3 dimensional frames.
61. It is this feature of 3-space domain, further bring us face to face with the split of cube into 8 sub cubes and the eighth sub-sub cubes of each 8 sub cubes, as a set up of 8 sub-sub cubes, makes a set up parallel to the set up of a sub cube, the ninth sub cube.
62. It is this ninth sub cube which is missing in the modern topology which is attempting to generalize surfaces with re-organizing that domain is being missed.
63. The role of space contained domain as boundary is different than the role of space domain as a domain fold.

