VEDIC ARITHMETIC

Section-5

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Lesson -13 Ganita Upsutra – 1

1. Ganita Upsutras

There are 13 Ganita Upsutras.

2. Number Value 13

Number value 13 is parallel with 13 versions of H_6, the representative regular bodies of 13 geometries of 6-space.

Further number value 13 is of Sathapatya of 13 edged cube within 4-space.

The transcendence of 5-space origin of 4-space, splits 4-space domain into a pair of 4-space domain and makes a splits spectra set-up of triple values (4,5,4) of summation value 13 .

3. Applied Values Basis Base

Ganita Upsutras are the basis base of applied values of Vedic Mathematics. The Ganita Upsutra -1, along with Ganita Sutra -1, lays the foundation for applied values being parallel with pure values of Vedic Mathematics. The numbers values 1 to 16, of 1 to 29 factors provides 29 versions of H_{14} format for pure and applied values being parallel with each other, as the dimensional frame of 4-space of quadrupel spatial dimension is of value 2^4 and within 4-space domain, 12 edged cube manifests an additional (13^{th}) edge.

4. TCV 13

The number value 13 as TCV 13 leads to following 8 well-known formulations of TCV 13

(1) यज्ञ Yagya (2) अक्षर Akshar (3) सूर्य Surya

(4) प्रकाश Prakas (5) वायु Vayu (6) चित्त Chit

(7) चित्त Chitt (8) चक्षु Chakshu

To begin with, one may initiate oneself about applied values of Vedic Mathematics by concentrating upon above eight formulations of TCV 13.

5. Ganita Upsutras –

For appreciation of Sathapatya of Arithmetic of Ganita Sutras and Upsutras, here under or given features of reflection pairs of upper part of 9x11 grid of double digit numbers of ten place values systems.

Reflection Pairs Formats

(1) (01, 10)

Sathapatya features of reflection pairs (01, 10) are of $h\frac{1}{2} + H_3 = h_3$ split of opposite orientation of formats of $h\frac{1}{2}$ and H_3.

(2) (02, 20)

Sathapatya features of reflection pairs (02, 20) are of $H_1 + D_7 = H_6$ split of opposite orientation of formats of H_1 and D_7.

(3) (03, 30)

Sathapatya features of reflection pairs (03, 30) are of $h_1 + H_8 = h8\frac{1}{2}$ split of opposite orientation of formats of h_1 and $h8\frac{1}{2}$.

(4) (04, 40)

Sathapatya features of reflection pairs (04, 40) are of $D_3 + D_{12} = D_{13}$ split of opposite orientation of formats of D_3 and D_{12}.

(5) (05, 50)

Sathapatya features of reflection pairs (05, 50) are of $h1\frac{1}{2} + H_{13} = H_{14}$ split of opposite orientation of formats of $h1\frac{1}{2}$ and H_{13}.

(6) (06, 60)

Sathapatya features of reflection pairs (06, 60) are of $H_2 + D_{17} = H_{17}$ split of opposite orientation of formats of H_2 and D_{17}.

(7) (07, 70)

Sathapatya features of reflection pairs (07, 70) are of $h_2 + H_{18} = D_{21}$ split of opposite orientation of formats of h_2 and H_{18}.

(8) (08, 80)

Sathapatya features of reflection pairs (08, 80) are of $D_4 + D_{22} = D_{24}$ split of opposite orientation of formats of D_4 and D_{22}.

(9) (09, 90)

Sathapatya features of reflection pairs (09, 90) are of $h2\frac{1}{2} + H_{23} = h_{25}$ split of opposite orientation of formats of $h2\frac{1}{2}$ and H_{23}.

(10) (11, 11)

Sathapatya features of reflection pairs (11, 11) are of $h_3 + h_3 = H_6$ split of opposite orientation of formats of h_3 and h_3.

(11) (22, 22)

Sathapatya features of reflection pairs (22, 22) are of $H_6 + H_6 = D_{13}$ split of opposite orientation of formats of H_6 and H_6.

(12) (33, 33)

Sathapatya features of reflection pairs (33, 33) are of $h8\frac{1}{2} + h8\frac{1}{2} = H_{17}$ split of opposite orientation of formats of $h8\frac{1}{2}$ and $h8\frac{1}{2}$.

(13) (44, 44)

Sathapatya features of reflection pairs (44, 44) are of $D_{13} + D_{13} = D_{24}$ split of opposite orientation of formats of D_{13} and D_{13}.

6. Ganita Sutras –

Reflection Pairs Formats

(1) (12, 21)

Sathapatya features of reflection pairs (12, 21) are of $D_5 + h5\frac{1}{2} = h8\frac{1}{2}$ split of opposite orientation of formats of D_5 and $h5\frac{1}{2}$.

(2) (13, 31)

Sathapatya features of reflection pairs (13, 31) are of $h3\frac{1}{2} + h_8 = D_{13}$ split of opposite orientation of formats of $h3\frac{1}{2}$ and h_8.

(3) (14, 41)

Sathapatya features of reflection pairs (14, 41) are of H_4 + $h10\frac{1}{2}$ = h_{14} split of opposite orientation of formats of H_4 and $h10\frac{1}{2}$.

(4) (23, 32)

Sathapatya features of reflection pairs (23, 32) are of h_6 + D_{10} = h_{14} split of opposite orientation of formats of h_6 and D_{10}.

(5) (15, 51)

Sathapatya features of reflection pairs (15, 51) are of h_4 + h_{13} = H_{17} split of opposite orientation of formats of h_4 and h_{13} .

(6) (24, 42)

Sathapatya features of reflection pairs (24, 42) are of D_8 + H_{11} = H_{17} split of opposite orientation of formats of D_8 and H_{11} .

(7) (16, 61)

Sathapatya features of reflection pairs (16, 61) are of D_6 + $h15\frac{1}{2}$ = $h19\frac{1}{2}$ split of opposite orientation of formats of D_6 and $h15\frac{1}{2}$.

(8) (25, 52)

Sathapatya features of reflection pairs (25, 52) are of $h6\frac{1}{2}$ + D_{15} = $h19\frac{1}{2}$ split of opposite orientation of formats of $h6\frac{1}{2}$ and D_{15} .

(9) (34, 43)

Sathapatya features of reflection pairs (34, 43) are of H_9 + h_{11} = $h19\frac{1}{2}$ split of opposite orientation of formats of H_9 and h_{11} .

(10) (17, 71)

Sathapatya features of reflection pairs (17, 71) are of $h4\frac{1}{2}$ + h_{18} = D_{24} split of opposite orientation of formats of $h4\frac{1}{2}$ and h_{18}.

(11) (26, 62)

Sathapatya features of reflection pairs (26, 61) are of H_7 + H_{16} = D_{24} split of opposite orientation of formats of H_7 and H_{16}.

(12) (35, 53)

Sathapatya features of reflection pairs (35, 53) are of h_9 + $h13\frac{1}{2}$ = D_{24} split of opposite orientation of formats of h_9 and $h13\frac{1}{2}$.

(13) (18, 81)

Sathapatya features of reflection pairs (18, 81) are of H_5 + $h20\frac{1}{2}$ = h_{25} split of opposite orientation of formats of H_5 and $h20\frac{1}{2}$.

(14) (27, 72)

Sathapatya features of reflection pairs (27, 72) are of h_7 + D_{20} = h_{25} split of opposite orientation of formats of h_7 and D_{20}.

(15) (36, 63)

Sathapatya features of reflection pairs (36, 63) are of D_{11} + h_{16} = h_{25} split of opposite orientation of formats of D_{11} and h_{16}.

(16) (45, 54)

Sathapatya features of reflection pairs (45, 54) are of $h11\frac{1}{2}$ + H_{14} = h_{25} split of opposite orientation of formats of $h11\frac{1}{2}$ and H_{14}.