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Trai Rashiq Bargia Sutra and Rana's Constant

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Abstract : *Like as,*

1. *Polidromik Number: (111, 222, 121, 525 its value same as from left to right starting number setup)*
2. *Horzat Number: (the number is divided by the sum of groups all number in, like in 12 sums (1+2) 3 is the Hozrat number of 12.)*
3. *Demloa Number: (214423, 21+23 =44 that of the sum 1^{st} +last number =middle number)*
4. *UD Number : (ups and down number like 6, 9, 81, 18)*
5. *Kaprekar Constant: (the professor kaprekar in 1946 inventing the constant number 6174)*
6. *Kaprekar number: (2025 , cut in middle and ad 20+25=45 square then same previous number 2025)*

In this Connection,
Axioms defined Mohammad Makbul Hossain Rana using sequential, odd and even numbers, "TRAI RASHIQ BARGIA SUTRA & RANA'S CONSTANT", is a new invention and it is an extra ordinary and in-depth development in mathematics. His profound achievements in special types of Number Theory. In this theory, he establishes a particular relation between three consecutive integer/ odd/even numbers which is called "Rana's

Keywords: *Trai Rashiq bargio sutra & Constant as odd and even 8 and integer 2 up to nth term.*

I. Introduction

Rana's Trai Rashiq bargio sutra & Constant, as odd and even "R=8" and interger"R= 2" up to n th term. Provided extraordinarily deep theorems that laid the foundation for the complete classification of finite simple numbers, one of the greatest achievements of twentieth century in mathematics like, professor Kaprekar constant. Simple numbers are atoms from which all finite numbers are built have a common relation. In a major breakthrough, proved that every number (integer/even/odd) have a common number of elements. Later extended this result to establish a common constant of an important kind of finite simple number called an "R=2" for integer & R=8, for odd /even number. At this point, the classification project came within incredible conclusion that all finite simple number belongs to certain standard families. In-depth and influential. His complements each other's and together forms the backbone of modern number theory.

II. Heading S

Name of theory: Trai Rashiq Bargia Sutra and Rana's Constant "Par par tinty aungker barger auntor dhoer auntor akti dhrobo sonkha."
[Bangla Version: ci ci wZbwU As‡Ki *e‡M©i* Aš—I Ø‡qi Aš—i GKwU aªye msL¨v , msL¨vwU = 2]
[Bangla Version: ci ci wZbwU *†Rvo ev †e‡Rvo* msL¨vi *e‡M©i* Aš—i Ø‡qi Aš—i GKwU aªye msL¨v, msL¨vwU = 8] ivbvi aªyeK =2,8 Rana's dhrobok Integer number = 2, Even/odd (zore/bizore) number = 8

III. Indentations and Equations

Theses/theory:
1.1. Name of theory: Trai Rashiq Bargia Sutra and Rana's Constant.
1.1.1 Basic: Number theory.
1.1.2. Definition/sutra: Par par tinty aungker barger auntor dhoer auntor akti dhrobo sonkha.
1.1.3. [Bangla Version: ci ci wZbwU As‡Ki *e‡M©i* Aš—i Ø‡qi Aš—i GKwU aªye msL¨v , msL¨vwU = 2]
1.1.4. [Bangla Version: ci ci wZbwU *†Rvo ev †e‡Rvo* msL¨vi *e‡M©i* Aš—iØ‡qi Aš—i GKwU aªye msL¨v, msL¨vwU = 8]
1.1.5. ivbvi aªyeK=2, Rana's dhrobok Integer number = 2, Even/odd (zore/bizore) number = 8
1.1.6. Constant: integer number "R=2", Even/odd number "R= 8"

Proof this theory and constant "R=2 / 8":
1.1.7.

1.2.1. As 1, 2, 3 are three integer number
Proof:
$1^2 = 1$
] = 3
$2^2 = 4$] = 2 [The Rana's constant for integer Number up to n term]
] = 5
$3^2 = 9$

2.3. As 1, 3, 5 are three odd number

$1^2 = 1$
] = 8
$3^2 = 9$] = 8 [The Rana's constant for ODD Number up to n term]
] = 16
$5^2 = 25$

1.2.2. As 2, 4, 6 are three even number

$2^2 = 4$
] = 12
$4^2 = 16$] = 8 [The Rana's constant for EVEN Number up to n term]
] = 20
$6^2 = 36$

1.2.3. Example: let Three number are (a + 1), a, (a - 1) According to Rana's Trai Rashiq Bargia Sutra

Proof:
When, a = 1, 2, 3………..n [integer number]
$\{(a + 1)^2 – a^2\} – \{ a^2 – (a – 1)^2\}$
$= \{a^2 +2.a.1 + 1^2 - a^2\} – \{ a^2 – a^2 + 2.a.1 – 1^2\}$
$= \{2.a.1 + 1 \} – \{ 2.a.1 – 1\}$
$= \{2.a.1 + 1 – 2.a.1 + 1\}$
$= \{1 + 1\}$
$=2$
This the Rana's Constant "R=2" or "R"

1.2.4. Example: let Three number are a, (a+2), (a +4)
According to Rana's Trai Rashiq Bargia Sutra

Proof:
a, (a + 2), (a + 4)

When a= 2, 4, 6……..n [EVEN Number]
$\{ a^2 - (a + 2)^2\} – \{ (a+2)^2 – (a + 4)^2\}$
$[\{ 2^2 - (2 + 2)^2\} – \{(2+2)^2 – (2+ 4)^2\} = 8$ when a =2]
$[\{ 4^2 - (4 + 2)^2\} – \{(4+2)^2 – (4+ 4)^2\} = 8$ when a =4]
$[\{ 6^2 - (6 + 2)^2\} – \{(6+2)^2 – (6+ 4)^2\} = 8$ when a =6]

$= \{a^2 - a^2 - 2.a.2 - 4\} – \{ a^2 +2.a.2 + 4 – (a^2 + 2.a.4 + 16)\}$
$= \{-2.a.2 - 4\} – \{ a^2 +2.a.2 + 4 – a^2 - 2.a.4 - 16\}$
$= \{-4.a - 4\} – \{ 2.a.2 + 4 – 2.a.4 - 16\}$
$= \{-4.a - 4 – 4.a - 4 + 8.a + 16\}$
$= \{-4.a - 4 – 4.a - 4 + 8.a + 16\}$

={- 8 + 16}
=8
This the Rana's Constant "R=8" or "R" in even number

1.2.5. Example: let Three number are a, (a+2), (a +4) According to Rana's Trai Rashiq Bargia Sutra
Proof:
a, (a+2), (a + 4)
When, a= 1, 3, 5………..n [ODD number]
$\{ a^2 - (a + 2)^2\} – \{ (a+2)^2 – (a + 4)^2\}$
$[\{ 1^2 - (1 + 2)^2\} – \{(1+2)^2 – (1 + 4)^2\} = 8$ when $a =1]$
$[\{ 3^2 - (3 + 2)^2\} – \{(3+2)^2 – (3 + 4)^2\} = 8$ when $a =3]$
$[\{ 5^2 - (5 + 2)^2\} – \{(5+2)^2 – (5 + 4)^2\} = 8$ when $a =5]$

$= \{a^2 - a^2 - 2.a.2 - 4 \} – \{ a^2 +2.a.2 + 4 – (a^2 +2.a.4 + 16)\}$
$= \{-2.a.2 - 4\} – \{ a^2 +2.a.2 + 4 – a^2 - 2.a.4 - 16\}$
$= \{-4.a - 4\} – \{ 4.a + 4 – 8.a - 16\}$
$= \{-4.a - 4 – 4.a - 4 + 8.a + 16\}$
$= \{-4.a - 4 – 4.a - 4 + 8.a + 16\}$
$=\{- 8 + 16\}$
$=\{- 8 + 16\}$
$=8$
This the Rana's Constant "R=8" or "R" in odd number.

IV. Figures and Tables

2.1. Definition: Par par tinty aungker barger antor dhoer auntor akti dhrobo sonkha.

Exercise: - 1 (Numerical Problems)

2.1.1) Sum of any three integers square value as 35 and multiple value of 1st &
3rd number as 5 and Rana's constant "8", proof Rana's theory and
Determine the value of three numbers.

{†h †Kvb wZbwU µwgK msL¨vi e‡©Mi mgwó 35 Ges 1g I 3q c‡`i ¸b dj 5 Ges ivbvi aªyeK= 8 n‡j msL¨v wZbwU
wb©bq Ki |}

2.1.2) Determine the value of three numbers that the Rana's constant as "8"
and sum of square is 56 and 1st & 3rd number multiple is 12.

{hw` ivbvi aªyeK= 8 nq Ges wZbwU c‡`i e‡©Mi mgwó 56 , 1g I 3q c‡`i ¸b dj 12 nq Z‡e msL¨v wZbwU
wb©bq Ki |}

2.1.3) If R=8 and the square sum value of three number is 83 and 1st & 3rd
number multiple is 21. Determine the number odd or even.

{hw` R = 8 Ges wZbwU msL¨vi e‡©Mi mgwó 83 , 1g I 3q c‡`i ¸b dj 21 nq Z‡e msL¨v wZbwU ‡Rvo bv †e‡Rvo
wb©bq Ki |}

2.1.4) If R=2 and the square sum value of three number is 14 and 1st & 3rd
number multiple is 3.determine the value of those number.

{hw` R = 2 Ges msL¨v wZbwUi e‡©Mi mgwó 14 , 1g I 3q c‡`i ¸b dj 3, nq Z‡e msL¨v wZbwU wb©bq Ki |}

2.1.5) Determine the value of a, b, c when a2 + b2 + c2 =29 & ac=8 and constant R=2.
{hw` R=2. nq Ges a2 + b2 + c2 =29 & ac=8 nq, Z‡e a, b, c Gi gvb wb©bq Ki |}
Cell:01515691992, email: atex.rana@gmail.com, mhrana01@yahoo.com

Solution: 2.1.1)

Let, a, b, c is three integers, According to the question as
$a^2 + b^2 + c^2 = 35$ -------(i),
$a \times c = 5$ ----------------(ii),
$a = 5/c$ ------------------------------(iii)
Constant R = 8
According to the rana's theory.
$\{a^2 - b^2\} – \{ b^2 – c^2\} = 8$
$=> a^2 - 2b^2 + c^2 = 8$
$=> a^2 + b^2 + c^2 = 8 + 3b^2$
=>35 = 8 + 3b2
=> 35 - 8 = 3b2
=> 27 = 3b2
$=> b^2 = 9$
=> b = + 3, -3
from eqn (i)
$a^2 + b^2 + c^2 = 35$ --------(i),
$=> a^2 + 3^2 + c^2 = 35$
$=> a^2 + c^2 = 35 – 9$ (put the value of b)
$=> a^2 + c^2 = 26$ ----(iv)
From eqn (iv) & (iii)
$=> a^2 + c^2 = 26$
$=> (5/c)^2 + c^2 = 26$
$=> 25/c^2 + c^2 = 26$
$=> 25/c^2 + c^2 = 26$
$=> (25 +c^4)/c^2= 26$
$=> 25 +c^4 = 26 \times c2$
$=> c^4 - 26c^2 +25 =0$
$=> c^4 - 25c^2- c^2+25 =0$
$=> c^2(c^2 - 25)-1(c^2-25) =0$
$=> (c^2 - 25)(c^2-1) =0$
$=> c^2=1$
=> c =1, -1
or
$=> (c^2-25) =0$
$=> c^2 =25$
=> c = 5, -5
From eqn (iii)
a=5/c
a=5/5=1 [c = 5]
a = 5/1 =5 [c = 1]
The values of three numbers as 1, 3, 5 or 5, 3, 1 (Odd)

Solution: 2.1.2)
Let, p, q, r is three integers, According to the question as
$p^2 + q^2 + r^2 = 56$ ---------(i),
$p \times r = 12$ ----------------(ii),
$p = 12/r$ ---------------------------------(iii)
Constant R = 8
According to the rana's theory.
$\{p^2 - q^2\} – \{ q^2 – r^2\} = 8$
$=> p^2 - 2q^2 + r^2 = 8$
$=> p^2 + q^2 + r^2 = 8 + 3q^2$

$=> 56 = 8 + 3q^2$
$=> 56 - 8 = 3q^2$
$=> 48 = 3q^2$
$=> q^2 = 16$
$=> q = + 4, -4$
From eqn (i)
$p^2 + q^2 + r^2 = 56$
$=> p^2 + 4^2 + r^2 = 56$
$=> p^2 + r^2 = 56 – 16$
$=> p^2 + r^2 = 40$ ----(iv)
From eqn (iv) & (iii)
$=> p^2 + r^2 = 40$
$=> (12/r)^2 + r^2 = 40$
$=> 144/r^2 + r^2 = 40$
$=> 144/r^2 + r^2 = 40$
$=> (144 +r^4)/r^2= 40$
$=> 144 +r^4 = 40 x r2$
$=> r^4 - 40r^2 +144 = 0$
$=> r^4 - 36r^2-4r^2+144 = 0$
$=> r^2 (r^2 - 36) - 4(r^2-36) = 0$
$=> (r^2 - 36)(r^2- 4) = 0$
$=> (r^2 - 36) = 0$
$=> r^2 = 36$
$=> r =6, -6$
or
$=> (r^2- 4) = 0$
$=> r^2 = 4$
$=> r= 2, -2$
From eqn (iii)
P =12/r
P =12/6 = 2 [r = 6]
p = 12/2 =6 [r = 2]
The values of three numbers as 2, 4, 6 or 6, 4, 2 or -2,-4,-6, (even)

Solution: 2.1.3)
Let, p, q, r is three integers, According to the question as
$x^2 + y^2 + z^2 = 83$ ---------(i),
x X z = 21 ----------------(ii),
x = 21/z ---------------------------------(iii)
Constant R = 8
According to the rana's theory.
$\{x^2 - y^2\} – \{y^2 – z^2\} = 8$
$=> x^2 - 2y^2 + z^2 = 8$
$=> x^2 + y^2 + z^2 = 8 + 3y^2$
$=> 83 = 8 + 3y^2$
$=> 83 - 8 = 3y^2$
$=> 75 = 3y^2$
$=> y^2 = 25$
$=> y = + 5, -5$
From eqn (i)
$x^2 + y^2 + z^2 = 83$
$=> x^2 + 5^2 + z^2 = 83$
$=> x^2 + z^2 = 83 – 25$
$=> x^2 + z^2 = 58$ ----(iv)
From eqn (iv) & (iii)
$=> x^2 + z^2 = 58$
$=> (21/z)^2 + z^2 = 58$
$=> 441/z^2 + z^2 = 58$
$=> (441 + z^4)/z^2 = 58$

$=> 441 + z^4 = 58z^2$
$=> 441 - 58z^2 + z^4 = 0$
$=> 441 - 49z^2 -9z^2+ z^4 = 0$
$=> 49(9 - z^2) - z^2 (9- z^2) = 0$
$=> (49 - z^2)(9 - z^2) = 0$
$=> 49 =z^2$ or $9 = z^2$
$=> -7,7 = z$ or $-3,3 = z$
From eqn (iii)
$x =21/z$
$x=21/7 = 3$ [z = 7]
$x = 21/3 =7$ [z = 3]
The values of three numbers as 3, 5, 7 or 7, 5, 3 or -3,-5,-7(odd), Proved

Solution: 2.1.4)
Let, l, m, n is three integers, According to the question as
$l^2 + m^2 + n^2 = 14$---------(i),
$l \times n = 3$ ------------------(ii),
$l = 3/n$ ------------------------------- -(iii)
Constant R = 2
According to the rana's theory.
$\{l^2 - m^2\} – \{ m^2 – n^2\} = 2$
$=> l^2 - 2m^2 + n^2 = 2$
$=> l^2 + m^2 + n^2 = 2 + 3m^2$
$=> 14 = 2 + 3m^2$
$=> 14 - 2 = 3m^2$
$=> 12 = 3m^2$
$=> m^2 = 4$
$=> m = + 2, -2$
from eqn (i)
$l^2 + m^2 + n^2 = 14$
$=> l^2 + 2^2 + n^2 = 14$
$=> l^2 + n^2 = 14 – 4$
$=> l^2 + n^2 = 10$ ----(iv)
From eqn (iv) & (iii)
$=> l^2 + n^2 = 10$
$=> (3/n)^2 + n2 = 10$
$=> 9/n^2 + n^2 = 10$
$=> (9 + n^4)/n^2 = 10$
$=> 9 + n^4 = 10n^2$
$=> 9 – 10n^2 + n^4 = 0$
$=> 9 – n^2 -9n^2 + n^4 = 0$
$=> 1(9 - n^2) - n^2 (9- n^2) = 0$
$=> (9 - n^2)(1 - n^2) = 0$
$=> 9 = n^2$ or $1 = n^2$
$=> -3,3 = n$ or $-1,1 = n$
From eqn (iii)
$l =3/n$
$l=3/1 = 3$ [n = 1]
$l = 3/3 =1$ [n = 3]
The values of three numbers as 1, 2, 3 or 3, 2,1 or -1,-2,-3 (integer) Proved

Solution: 2.1.5)
Let, a, b, c is three integers
According to the question
$a^2 + b^2 + c^2 =29$--------(i)
$ac = 8$ ------------------(ii)
$a=8/c$ ------------------(iii)
constant R=2.
According to the rana's theory.

$\{a^2 - b^2\} – \{ b^2 – c^2\} = 2$
$=> a^2 - 2b^2 + c^2 = 2$
$=> a^2 + b^2 + c^2 = 2 + 3b^2$
$=> 29 = 2 + 3b^2$
$=> 29 - 2 = 3b^2$
$=> 27 = 3b^2$
$=> b^2 = 9$
$=> b = + 3, -3$
from eqn (i)
$a^2 + b^2 + c^2 = 29$
$=> a^2 + 3^2 + c^2 = 29$
$=> a^2 + c^2 = 29 – 9$
$=> a^2 + c^2 = 20$ ----(iv)
From eqn (iv) & (iii)
$=> a^2 + c^2 = 20$
$=> (8/c)^2 + c^2 = 20$
$=> 64/c^2 + c^2 = 20$
$=> 64/c^2 + c^2 = 20$
$=> (64 +c^4)/c^2= 20$
$=> 64 +c^4 = 20 x c^2$
$=> c^4 - 20c^2 +64 =0$
$=> c^4 - 16c^2- 4c^2+64 =0$
$=> c^2 (c^2 - 16)-4(c^2-16) =0$
$=> (c^2 - 16)(c^2-4) =0$
$=> (c^2 - 16) =0$
Or $(c^2-4)=0$
$=> c =2, -2$
or
$=>(c^2-16) =0$
$=> c^2 =16$
$=> c = 4, -4$
From eqn (iii)
$a=8/c$
$a=8/2=4$ [c = 2]
$a = 8/4 =2$ [c = 4]
The values of three numbers as 2, 3, 4 or 4, 3, 2 (integer), Proved

V. Conclusion

At this point, the classification project came within. Its almost incredible conclusion that all finite simple number belongs to certain standard families. The achievements of Mohammad Makbul Hossain (Rana) is the extraordinary, in-depth and influential. His complements each other's and together forms the backbone of modern number theory

Learning this theory the mathematics student will benefited like the followings:

1. Power of Math in a single equation.
2. Odd and Even Number
3. Relation between 1 to n-1 number (Odd Number)
4. Relation Between 1 to n+1 number (even number)
5. Relation between 1 to n number (integer number)
6. Negative and positive numbers in a same relation.
7. Infinity Relation for number.
8. Common relation from all number in integer and odd, even number.
9. It is a "Trai Rashiq" equation so it needs two values to determine the third value.

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References

[1]. 17th science and technology fair 1993 "Number playing by mathematics" DT: 7-9 Th December 1993
[2]. Copyright Registration No. 10482 COPR DT: 31/08/2008
[3]. *Theory of number*
[4]. *Real number analysis as Sequence of number as **In*** **Number**
12 = 1 282 = 784
42 = 16 292 = 841
52 = 25 302 = 900…….
252 = 625 502 = 2500n………..…n2
[5]. *Shown / Approved by Member secretary of Bangladesh mathematics society and chairman, math department Dhaka University.*