BBS-ISL Matrix Fundamentals:

10 Basic, fundamental rules of the symmetrical BBS-ISL Matrix

- Basic BBS-ISL Rule 1: All numbers (#s) related by the 1-4-9-...PD sequence
- Basic BBS-ISL Rule 2: Every # in the PD sequence is the square of an Axial #.
- Basic BBS-ISL Rule 3: The Odd-Number Summation sequence forms the PD sequence.
- Basic BBS-ISL Rule 4: Every EVEN Inner Grid (IG) # is divisible by 4 & all are present.
- Basic BBS-ISL Rule 5: Every IG# is:
 - A: The difference (Δ) between its two PD-sequence #s. (Note: A=B=C=D=E, and F.)
 - Ex:

$$PD25 - PD9 = 16$$

- \circ **B:** The sum (Σ) of the Δ s of each of its PD#s between its two PD-sequence #s (as above).
 - Ex:

$$(PD25 - PD16) + (PD16 - PD9) = 16$$

- \circ C: The Δ between the squares of the two Axial #s forming that IG# (as above).
 - Ex:

$$5^2 - 3^2 = 16$$

- **D:** The product of the Addition & Subtraction of the two Axial #s forming that IG# (as above).
 - Ex:

$$(5+3)x(5-3) = 16$$

- E: The product of the Diagonal Axis # STEPS from the PD times the ∑ of Row + Column Axis #s.
 - Ex:

$$2x(5+3) = 16$$

- F: Also, the product of its 2 Axial #s intersected by that IG#'s 90° diagonals.
 - Ex:

$$2x8 = 16$$

• Basic BBS-ISL Rule 6: Every *ODD IG# is NOT PRIME & all are present.

- Corollary: NO PRIME #s are present on the *IG.
- Corollary: NO EVEN, NOT divisible by 4, #s are present on the IG.
 *Excepting the 3-5-7-... ODD #s of the 1st Parallel Diagonal
- Basic BBS-ISL Rule 7: The ODD-Number sequence, and the 1–4–9-...PD sequence, forms the sequential Δ between ALL IG#s.
- Basic BBS-ISL Rule 8: The Δ between #s within the Parallel Diagonals is a constant 2 x its Axial #.
- Basic BBS-ISL Rule 9: The Δ between #s in the Perpendicular Diagonals follow:
 - A: From EVEN PD#s, \sqrt{PD} x 4 starts the sequence & follows x1-x2-x3-x4....
 - **B:** From ODD PD#s, √PD x 4 starts the sequence & follows x1-x2-x3-x4....
 - C: From ODD Perpendicular Diagonals between the EVEN-ODD diagonals (above), the sequence starts with the same value as the Axis number ending the diagonal, the sequence following x1-x3-x5-x7..
- Basic BBS-ISL Rule 10: Every #, especially the #s in the ONEs Column, informs both smaller and larger Sub-set symmetries (much larger grids required to demonstrate).

BBS-ISL Matrix Inner Grid Golden Rules (IGGR)

5 Basic, fundamental rules of the symmetrical BBS-ISL Matrix Inner Grid

- **IGGR 1:** The IG is formed of two equal & symmetrical 90°-right, isosceles triangles that are bilaterally symmetrical about the PD and, infinitely expandable.
- **IGGR 2:** The 90°-right-triangle inherent to ALL squares and rectangles by definition both forms the alternating EVEN-ODD square grid cells within the Matrix, and, is responsible for all major patterns and sequences, thereupon.
- IGGR 3: Subtraction-Addition: Every IG# is simply the Δ between its two PD#s (subtraction), and, the sum (∑) of any IG# + its PD# above = the PD# on the end of that Row (or, Column).
- **IGGR 4:** Multiplication-Division: Every IG# is simply the product of the two AXIAL #s intersected by the two diagonals of that said IG# pointing back to the Axis at a 90° angle (multiplication), and, the dividend of the Axial divisor and quotient (division).
- **IGGR 5:** The actual # of grid-cell steps i.e., the actual # of STEPS from a given IG# to another by a strictly horizontal, vertical, or 45° diagonal path forms a simple, yet often fundamental descriptor to the pattern-sequence templates that inform the more advanced patterns, e.i., Exponentials and especially the Pythagorean Triples (PTs). STEPS are particularly important in the geometric visualizations within the BBS-ISL Matrix (as alluded to in IGGR 2, above).

Pythagorean Triples and BBS-ISL Fundamentals (TPISC: The Pythagorean-Inverse Square Connection)

3 Basic, fundamental rules of the symmetrical BBS-ISL Matrix Inner Grid that encompass the PTs.

- TPISC-BBS-ISL Rule 1: Every IG EVEN Squared # is part of a Paired-Factor Set (PFS) that:
 - A: Has reciprical PFS members on the PD vertically above.
 - B: Both PFS members reside on the SAME Row.
 - C: They represent the a² and b² values of a PT, whose c² value is on the PD intersection
- TPISC-BBS-ISL Rule 2: Every PT is found on the BBS-ISL Matrix and can be located by this intersection of EVERY PD (9>) and a Row with PFSs.
- **TPISC-BBS-ISL Rule 3:** Every PT including its sides, perimeter, area and proof can also be found and fully profiled (and, predicted) as r-set, s-,t-set members of the *Dickson Method (DM)*, *Expanded Dickson Method (EDM)*, and the *Fully Expanded Dickson Method (FEDM)*, shown herein.

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BBS-ISL Matrix: 35x35

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