

# 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 ( $\Delta$ ) between its two PD-sequence #s. (Note: A=B=C=D=E, and F.)
  - Ex:

$$PD25 - PD9 = 16$$

- **B:** The sum ( $\Sigma$ ) of the  $\Delta$ s of each of its PD#s between its two PD-sequence #s (as above).
  - Ex:

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

- **C:** The  $\Delta$  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  $\Sigma$  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 1<sup>st</sup> Parallel Diagonal
- **Basic BBS-ISL Rule 7:** The ODD-Number sequence, and the 1—4—9—...PD sequence, forms the sequential  $\Delta$  between ALL IG#s.
- **Basic BBS-ISL Rule 8:** The  $\Delta$  between #s within the Parallel Diagonals is a constant 2 x its Axial #.
- **Basic BBS-ISL Rule 9:** The  $\Delta$  between #s in the Perpendicular Diagonals follow:
  - **A:** From EVEN PD#s,  $\sqrt{\text{PD}} \times 4$  starts the sequence & follows  $x_1 - x_2 - x_3 - x_4 \dots$
  - **B:** From ODD PD#s,  $\sqrt{\text{PD}} \times 4$  starts the sequence & follows  $x_1 - x_2 - x_3 - x_4 \dots$
  - **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  $x_1 - x_3 - x_5 - x_7 \dots$
- **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  $\Delta$  between its two PD#s (subtraction), and, the sum ( $\Sigma$ ) 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 reciprocal PFS members on the PD vertically above.
  - **B:** Both PFS members reside on the SAME Row.
  - **C:** They represent the  $a^2$  and  $b^2$  values of a PT, whose  $c^2$  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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BBS35x35-+.png (BBS-ISL Matrix: 35x35) [700x691]