MAGIC SQUARES & NUMBER ENIGMAS

ALBRECHT DURER 4x4 MAGIC SQUARE

Ancient 1514 Melencolia Enigma * Digits 1 to 16 * Constant Magic Sum = 34

SOLVER TIME & SCORE

Start: ___:___ Stop: ___:___

Difficulty: [ ] Easy [ ] Med [ ] Hard

16	1..16	1..16	13	= 34
1..16	10	11	1..16	= 34
9	1..16	1..16	12	= 34
1..16	15	14	1..16	= 34
= 34	= 34	= 34	= 34	Diag = 34

MAGIC SQUARE PRINCIPLES

THE MAGIC CONSTANT 34

Every row, every column, and both main diagonals must sum to exactly 34.

COMPLETE DIGITS 1 TO 16

Use all integers from 1 to 16 exactly once. Zero duplicate numbers permitted.

DURER'S 1514 DATE

Notice the bottom two middle cells: 15 and 14 form the engraving year 1514.

QUADRANT SYMMETRY

Each of the four 2x2 corner quadrants also sums to the magic constant 34.

GEOMETRIC MAGIC COMBINATIONS

4 Corners: 16 + 13 + 4 + 1 = 34

Center 4: 10 + 11 + 6 + 7 = 34

Opposite Pairs: 3 + 2 + 15 + 14 = 34

Total Symmetry Combinations: 86

DURER 1514 MAGIC SQUARE MATHEMATICAL PROOF & ARITHMETIC AUDIT

MATHEMATICAL DERIVATION

Formula for M(n) = n*(n^2 + 1) / 2

For n=4: M(4) = 4*(16 + 1) / 2 = 34

Total Sum 1 to 16 = 136

136 / 4 rows = 34 constant sum

Complementary pairs sum to 17

SYMMETRY VERIFICATION

Row 1 Sum = 34 [ ] Verified

Row 2 Sum = 34 [ ] Verified

Row 3 Sum = 34 [ ] Verified

Row 4 Sum = 34 [ ] Verified

Both Diagonals = 34 [ ] Verified

SCHOLAR CERTIFICATION

Mathematician: _____

Audit Date: _____

Solving Time: _____ Minutes

All 16 Numbers Checked: [ ] YES

Dürer Monogram: [AD 1514]

CANDIDATE NUMBER SCRATCHPAD & ARITHMETIC VERIFICATION (1 TO 16):

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16