

More on fascinating magic squares, *Chautisa*, found in India.

While Albrecht Dürer’s magic square introduced in 1514 is believed to be the first in European art, magic squares have been around in China, India and Egypt for over 4,000 years. References to magic squares have been found engraved on stone or metal and worn as talismans, the belief being they have astrological and divinatory qualities to impede natural calamities, prevention of diseases and bringing prosperity and longevity for mankind. The earliest known magic square is Chinese, recorded around 2800 B.C., described as “Lo-Shu” magic square of order three, the *magic constant* being 15. In India a fourth-order magic square is mentioned by legendary astronomer *Varahamihira* (505 – 587 CE) in his unique book ‘*Brihatsamhita*’. At various times they have acquired religious rituals, numerological, mythical or magical significance, and have appeared as symbols in old Indian scriptures, in temples and in works of art. The *Ganesha yantra* (yantra) for appeasing *Lord Ganesha* and the *Kubera-Kolam*, a floor painting with rice flour used in South Indian homes for ‘*shuvam*’ are essentially magic squares of order three.

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

Chautisa

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

Durer's

The “*Chautisa*”

The ‘*Chautisa*’, a tenth century old 4×4 magic square is displayed in Hindi numerals in the [Parshvanath Jain temple in Khajuraho](#), India with the magic constant 34 (‘*choutish*’ in Hindi) that aptly names it. The sum of numbers in each row, column, and diagonal, as well as in each of the nine 2×2 sub-square (the four - central upper and lower squares at top and bottom and the side ones on left and right, do not add to 34 in Durer’s magic square), the corner numbers of each of the four 3×3 squares and the 4×4 square sums up to 34. The sum of the two sets of four symmetrical numbers around the center (1, 11, 16, 6) and (2, 12, 15, 5), and of the middle two entries of the two outer columns (12, 1, 6, 15) and two outer rows (2, 16, 11, 5) is also 34. Further, the corners of each 2×4 and 4×2 rectangle and the offset diagonals (12, 8, 5, 9, 1, 11, 16, 6, 14, 2, 3, 15 and 7, 11, 10, 6, 12, 2, 5, 15, 1, 13, 16, 4) also sum to 34. In addition to squares and rectangles, there are eight trapeziums, two in each position, like one forming with the numbers (12, 1, 16, 5) and (13, 8, 9, 4) and the others after rotating the square by 90 degrees, sum up yet again to 34. This and the four 2×2 sub-square patterns as mentioned earlier, do not add to 34 in the Dürer’s square which is a transposition of numbers in the *Chautisa*. In that sense, “*choutisa*” can be considered a more intricate magic square. Curious and innovative minds may unravel yet more permutations and combinations of patterns in the *Choutisa* that sum up to 34. It really boggles one’s mind.