

THE COPERNICUS MAGIC SQUARE

D. R. KAPREKAR

311 Devlali Camp, Devlali (Nasik)

The 500th birth day anniversary of the great Astronomer Copernicus was celebrated by the Indian National Science Academy at Delhi on 19/2/1973 which was the 500th birth day for the scientist Copernicus.

To-day I have taken 19-2-73 and 500 as the first line of the following magic square. Here $19+2+73+500=594$. Therefore this will be a magic square of the constant 594. The other 12 numbers are selected and written below the above 4 numbers in such a way that no number is again repeated and the sum of the 4 numbers in each horizontal or vertical line is equal to 594.

Thus for example $501+72+05+16=594$ (Numbers in one of the horizontal lines). Similarly $19+501+03+71=594$ (one of the sets of the four vertical columns). The 2 diagonal lines have also such numbers that they form a total=594

Thus see $19+72+499+04=594$
 same is the case for the 4 numbers on the other diagonal ($71+18+05+500=594$).

19	02	73	500594
501	72	05	16594
03	18	499	74594
71	502	17	04594
⋮	⋮	⋮	⋮	
594	594	594	594	

Thus in this way the sum is 594 in 10 ways (4 horizontal lines, the four vertical lines and the 2 diagonal lines).

Not only this much, but this square is so interesting that the sum is 594 in 10 more ways also. Thus see the four numbers in each corner of the above square

and the numbers nearby to every corner number. They form four squares and the sum of the four numbers in every corner square is also 594.

$$\text{Thus } 19 + 02 + 501 + 72 = 594$$

$$73 + 500 + 05 + 16 = 594$$

$$03 + 18 + 71 + 502 = 594$$

$$499 + 74 + 17 + 04 = 594$$

The central square of 4 numbers 72, 05, 18, 499 has also the sum equal to 594. The other middle squares such as 501, 72, 03, 18 and 05, 16, 499, 74 are also such that the sum is 594.

The four corner numbers of the big square that means $19 + 500 + 04 + 71$ also add upto 594 and there are four more ways which I leave for the readers to find out where also the sum of 4 symmetrically placed numbers is 594. Thus you will find that there are 22 different ways in which the sum of the 4 numbers is 594 in this wonderful magic square. Is this not a very miraculous magic square on the 500th birth day of the great Scientist Copernicus? I hope all the readers will enjoy the peculiar properties of this magic square. For other information you are requested to write to me on the address given above.