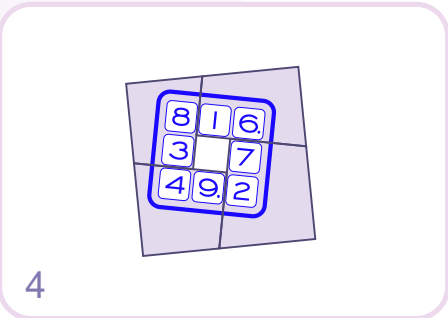
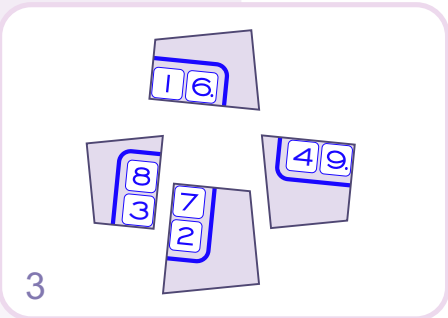
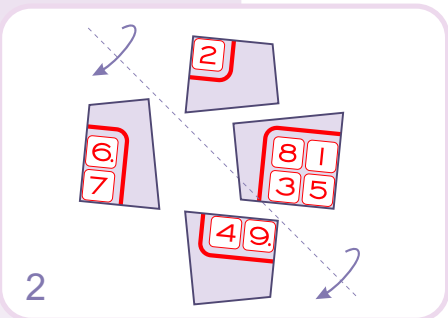
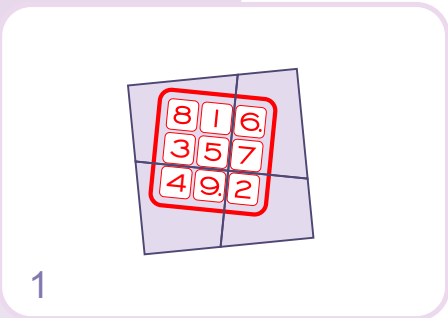


Treasure of Classic  
and Modern Puzzles

## Tricks



### Where Is the 5?\*

by Serhiy Grabarchuk

To demonstrate this trick first produce the four pieces for it. The pieces themselves and the diagram how to produce them are provided in the last page of this Print 'n' Play version.

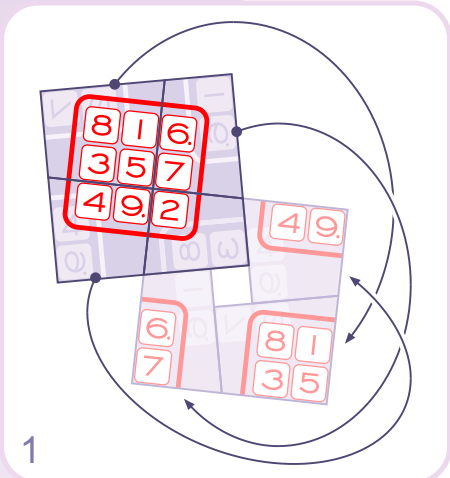
As soon as you've got the pieces ready arrange them into the square with the red magic square 3x3 on it as shown in the Illustration 1. The magic constant is 15 (each row, column and both main diagonals add up to 15). After that shuffle the pieces (Illustration 2) and then flip them all over (Illustration 3). Now put the pieces into a square again, this time with the blue magic square on it. To make the task easier just follow the blue outline of the magic square (Illustration 4).

Have you noticed something odd in the new square? Can you say where did the little square with the number 5 disappear, and thus why did the hole appear in the new square?

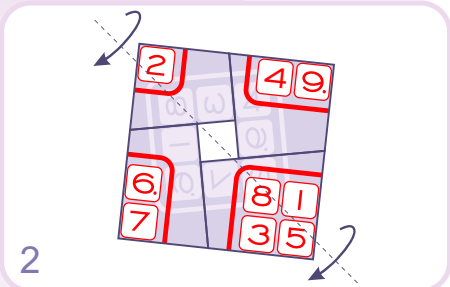
-----  
\*This puzzle trick is based on the classic Four-piece Squares paradox described in Martin Gardner's *Mathematics, Magic and Mystery* book.

Treasure of Classic  
and Modern Puzzles

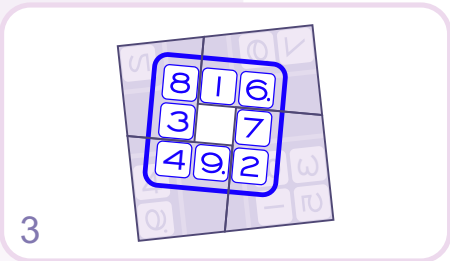
## Tricks



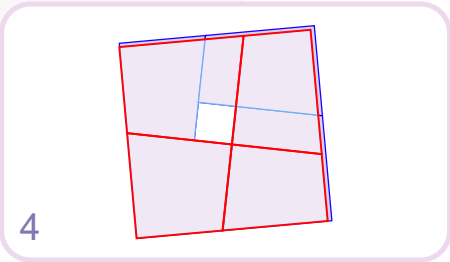
1



2



3



4

## Where Is the 5? (secret)

This trick is based on a well-known 4-piece paradox which idea is that its pieces can be arranged into a square in two different ways as shown in Illustration 1. One way provides us with a complete square, while the second gives us a square with a little hole in it.

The first way was employed to complete the front view of our trick and then the pattern of the red magic square was depicted on it. Then the second way to form a square was employed. After that all the pieces were simultaneously flipped over and the blue magic square was drawn around the hole in the square. Surely, the number 5, which should go over the hole, is missing in the new magic square. Both front and back views of the square with the hole in it and the mutual positions of the red and blue patterns on both of its sides are shown in Illustrations 2 and 3.

Now you can see that, in fact, in the course of this trick the 5 doesn't disappear; simply, there is no 5 on the back side of the square at all!

What really happens is that completing the second magic square (the blue one) on the back side of the trick we, in fact, are making another square of the same set of the four pieces, but now with a hole in it.

Since the pieces have the same area in both cases - face and back - it's obvious the square with the inner hole must have a little bigger size. The difference between the squares assembled in both ways is shown in Illustration 4.

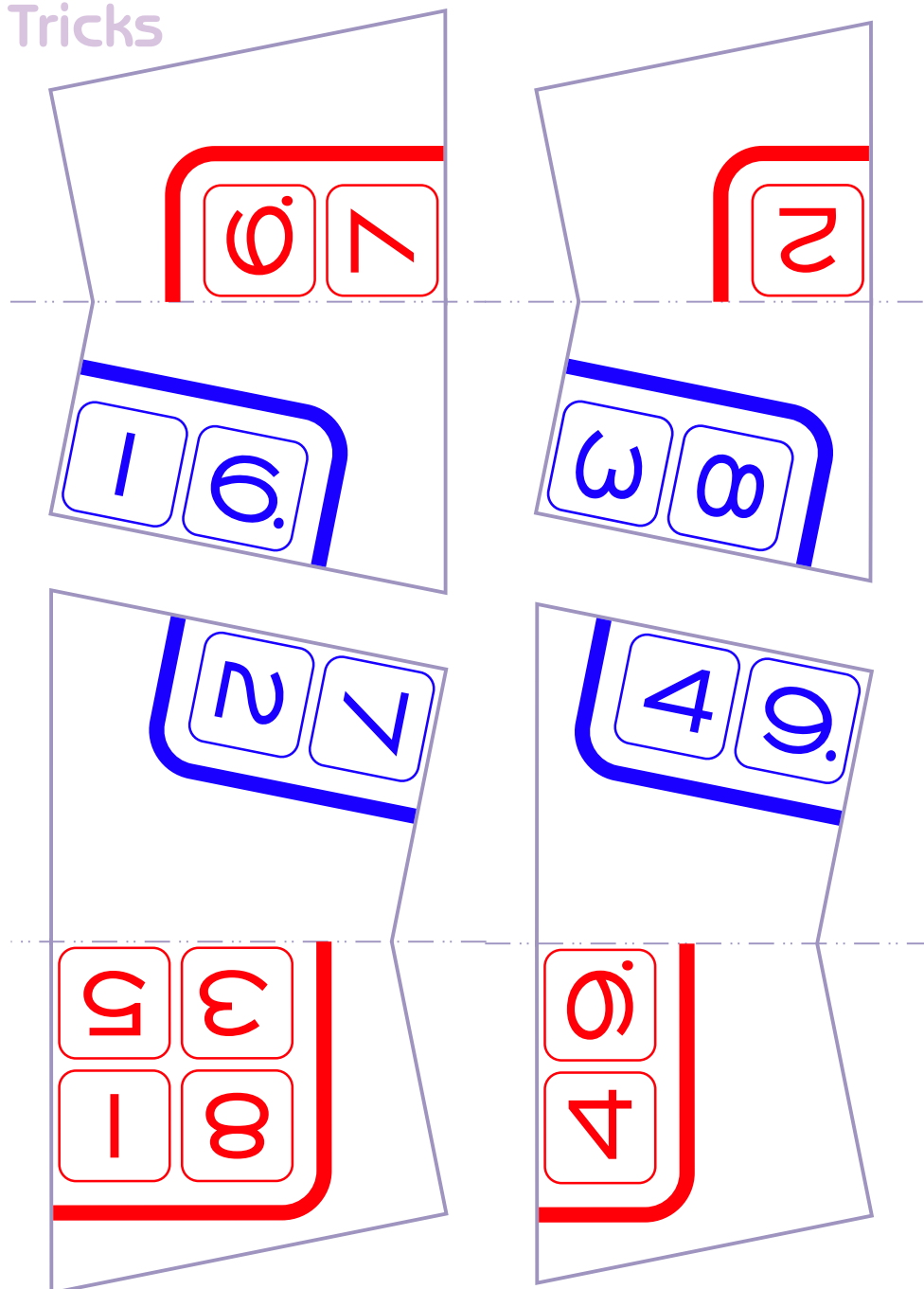
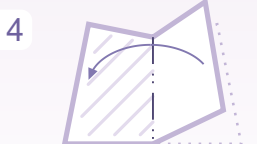
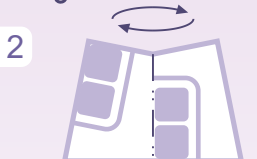
August 28, 2003

[www.puzzles.com](http://www.puzzles.com)

Trick's visual concept: Copyright © 2003 Serhiy Grabarchuk. All Rights Reserved.  
Copyright © 2003 ThinkFun Inc. All Rights Reserved. [webmaster@ThinkFun.com](mailto:webmaster@ThinkFun.com)  
Permission is granted for personal use only. This puzzle may not be duplicated for personal profit.

Treasure of Classic  
and Modern Puzzles

## Tricks



## Where Is the 5? (pieces)

To produce the pieces first print them out. Then follow the diagram shown in the left column above - from step 1 to step F (finish).

August 28, 2003

[www.puzzles.com](http://www.puzzles.com)

Trick's visual concept: Copyright © 2003 Serhiy Grabarchuk. All Rights Reserved.  
Copyright © 2003 ThinkFun Inc. All Rights Reserved. [webmaster@ThinkFun.com](mailto:webmaster@ThinkFun.com)  
Permission is granted for personal use only. This puzzle may not be duplicated for personal profit.