

The Checkerboard Challenge

The popular game of checkers may have begun more than 4000 years ago when the Egyptians played games on a board like today's checkerboard. Today's game of checkers seems to have its origins in France during the 11th century. Chess, a different game played on the same board, was invented in India, also about a thousand years ago.

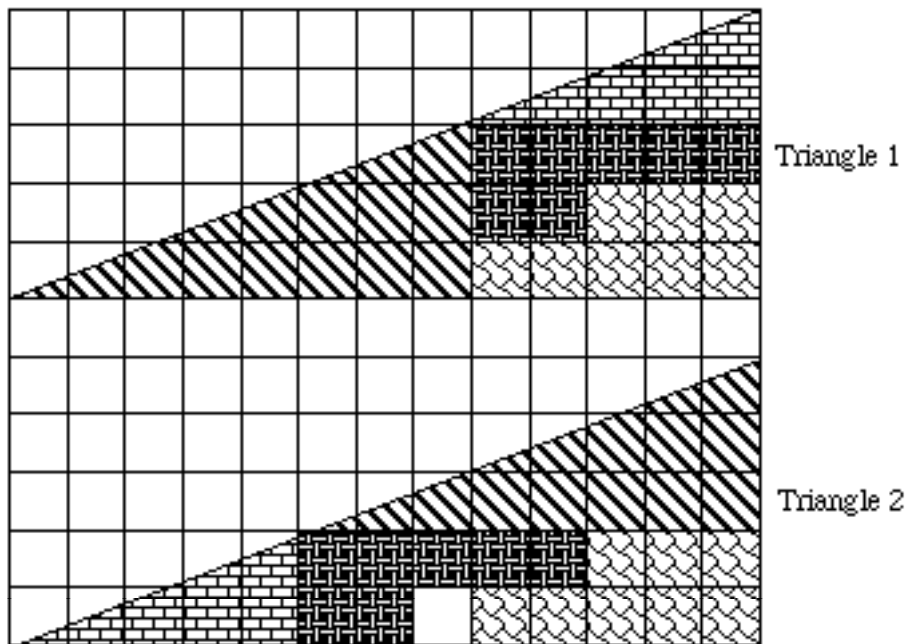
The same checkerboard pattern has been used for thousands of years in almost every culture on textiles, tiled floors, ceramics and other decorated objects. Over the years, many brain teasers have used the checkerboard. Try the checkerboard challenge. Good Luck!

First, let's call the shape you get by putting two squares side by side a *domino*. You can think of a domino as a rectangle that is twice as long as it is wide.

Now, start with an ordinary checkerboard, eight squares on each side. It has 64 squares. Remove two squares, one from the top right corner and one from the lower left, leaving 62 squares. Can the squares which are left be filled with 31 dominos, each domino covering two adjacent squares?

Note: After you have determined whether the answer is yes or no, describe the pattern that works or prove that no pattern will work.

The Missing Square!



Carefully examine the above diagram. Triangle 1 is divided into several pieces. Those pieces are rearranged and made into triangle 2; however, there is a missing square in triangle 2. How can this happen?