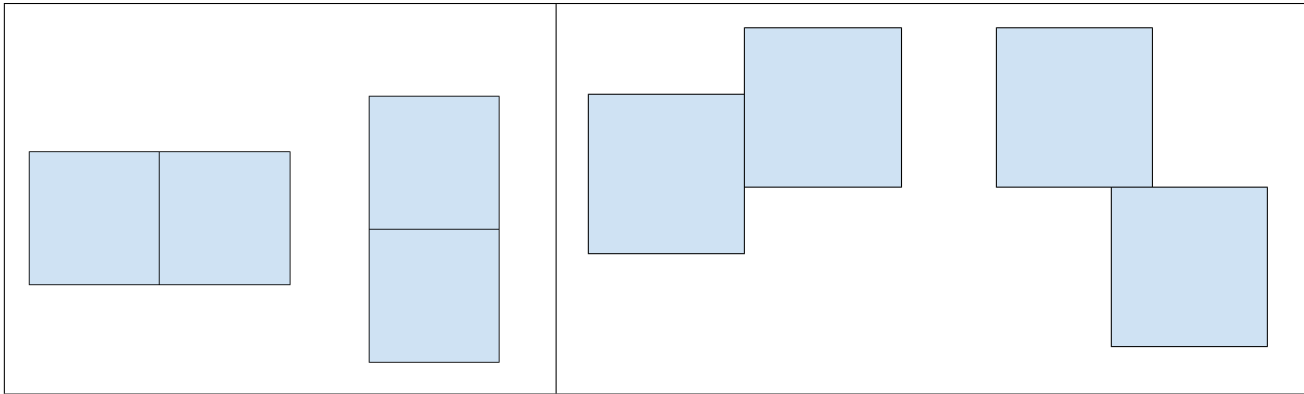


Dominoes and Tetrominoes

Suppose we put together squares of the same size. Squares are allowed to touch each other along an entire edge but can't touch on just a partial edge.



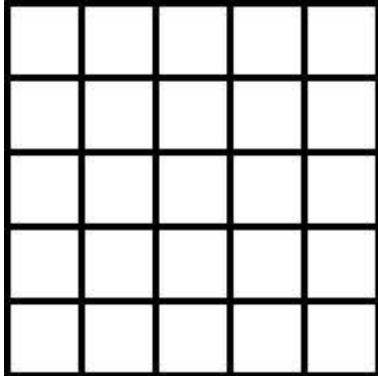
These are allowed, but they would both be considered the same shape.

These are NOT allowed.

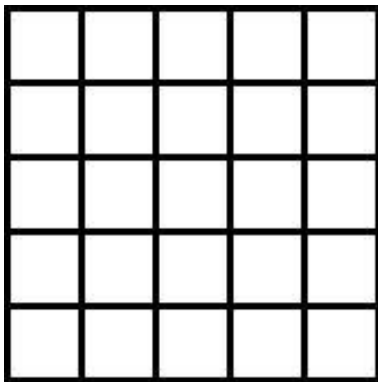
1. Consider 3 squares of the same size. Put them together so that each square is touching at least one other square along an entire edge. How many different shapes can you make?
2. Consider 4 squares of the same size. We want to create shapes with them in the same way. How many different shapes can you make?
3. We say that shapes tile a board if they completely cover the board with no overlap and no hanging off the edge. Can you tile a 3×3 board with dominoes? A 4×4 board? In how many ways?

1 Tiling with dominoes

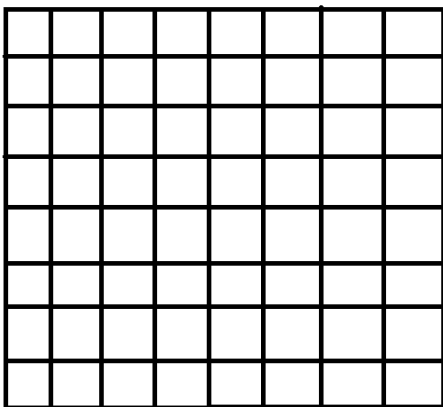
1. Is it possible to tile a 5×5 square board with dominoes?



2. Is it possible to tile with dominoes a 5×5 board from which one square has been removed? Does it matter which has been removed?



3. Is it possible to tile with dominoes an 8×8 square board from which two opposite corners have been removed?



2 Tiling with tetrominoes

For each of these cases, show a way to cover the board or explain why it cannot be done.

1. Can you tile a 20×1 board with all the tetrominoes, using each one once?

2. A 10×2 ?

3. A 4×5 ?

