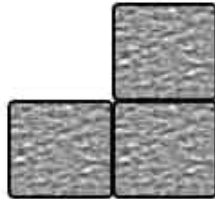# Handout: Not Dominos, Trominos!

What if instead of dominos, we tried covering the board with **tromino corners** like this:

1. Can you cover the chessboard with trominos? Try it!

2. Can you see a reason why not, other than simple gut feeling?

   [Hint: how many squares does each tromino cover?]

3. What if we removed the top left corner of the board? Could we cover the rest of the board with trominos?

   [Since 63 is a multiple of 3, there is no obvious reason why not. Have a try!]

4. Could we cover the chessboard with trominos if we doubled the width and height of the board, and removed the top left square?

   [The new board is now 16×16 with the top left square removed.]

5. Mathematical Side Journey: **A WARNING!!**

   Doubling BOTH side lengths actually makes the board FOUR times as big, it reminds you that you need to be careful what you mean when you say youre doubling the size of something.

   (a) What if we made both sides THREE times as long? How much bigger would the board get?

   (b) What it we made the sides FIVE times as long?

   (c) What if we had a cube and made a new one with TWICE the side lengths? How much bigger would the new cube be, volume-wise?

   (d) What if we TREBLED the side lengths of the cube?

6. Consider the following picture:
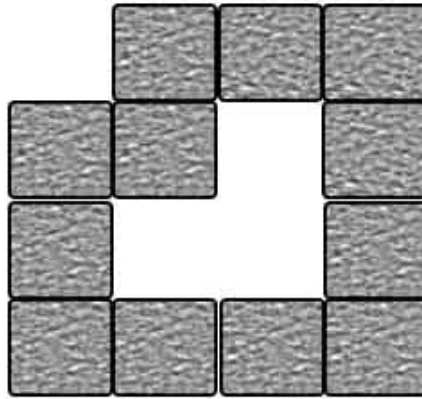
So, obviously a 4×4 board with the top left corner removed can be covered by tromino corners. And it sort of uses the 2×2 to get it done.

Can you use this 4×4 covering to find a covering of the 8×8 board with the top left corner removed?

7. If you can, can you use the 8×8 covering to make a covering of the 16×16 with the top left corner removed?

8. Use this doubling idea to find coverings of bigger and bigger boards!