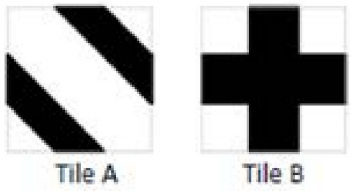
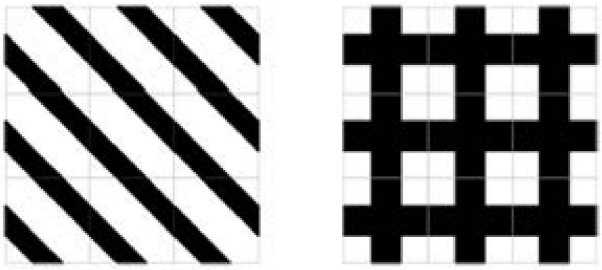
Exercise 1 Calc. : ✓

Tiling

A tiler is tiling the floor. He has two different tiles that he can use, tile A and tile B.

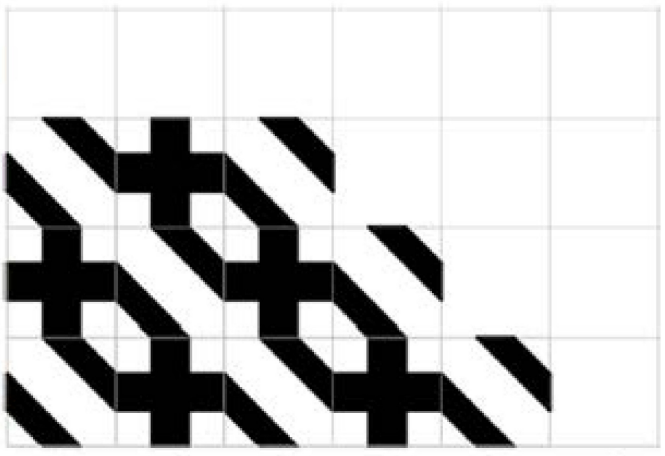


Using only tile A he makes the left hand pattern below and using only tile B he makes the right hand pattern below.



1. A tiling has been started below. The tiling pattern is created using a combination of the two tiles. The tiler continues to tile the floor by extending the pattern in the same way.

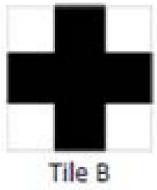
   Study the pattern, then extend it by drawing the correct tile in each of the 12 blank squares.

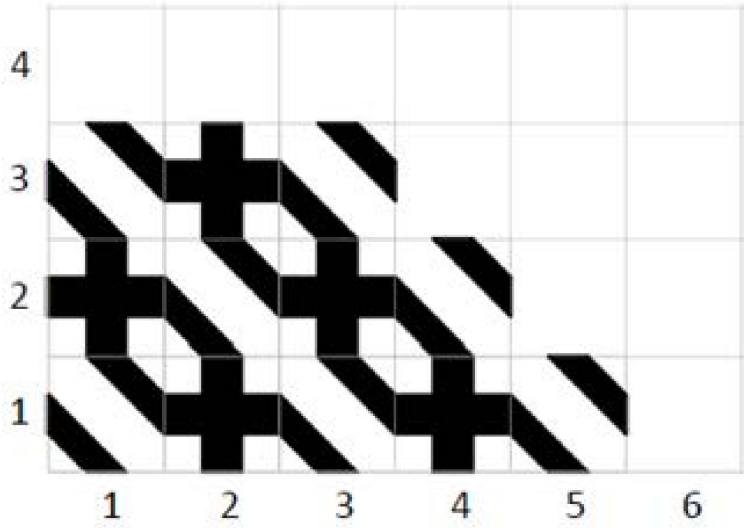


2. The tiler wants to make a set of instructions that he can give to people who want to make the same tiling pattern.

   Fill the spaces with the following elements to complete the instructions that will produce the pattern below.

IF | THEN | ELSE | TILE A | TILE B





TILING INSTRUCTIONS

For row = 1 to 4

"First determine the left hand tile in the row"

IF the row is an odd numbered row

THEN the first tile is _____

ELSE the first tile is _____

"Complete the row by adding tiles"

IF the previous tile is _____

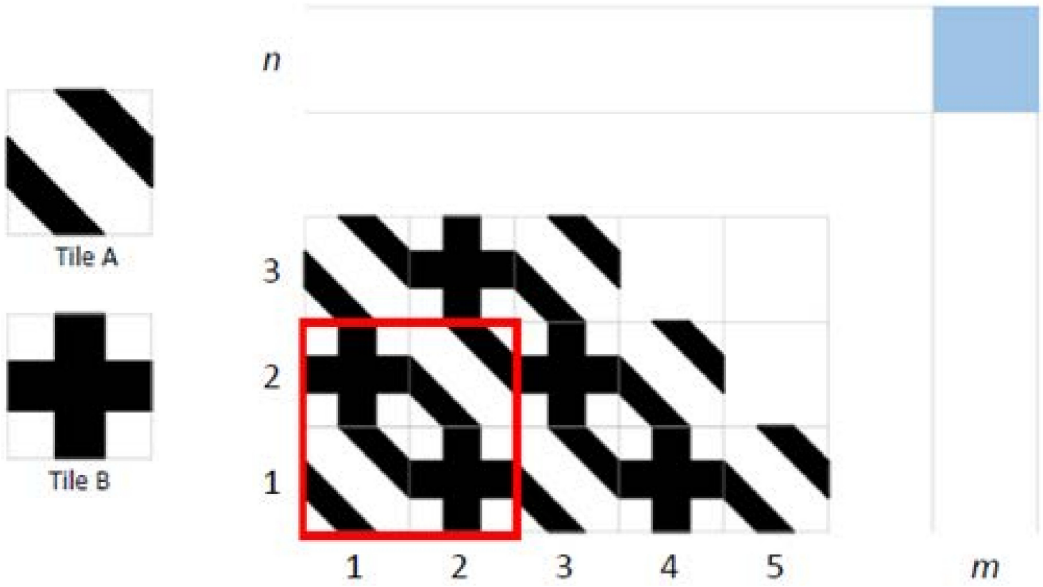
_____ use _____

_____ use _____

Next row

3. The tiler wants to be able to predict what tile will go in any position on the grid. For example, he wants to know what tile he will use in the marked position $(m; n)$.

   Study the tiling pattern and in particular the four tiles highlighted with a red border. Select ALL of the rules below that will correctly predict the tile that is needed for any grid position $(m; n)$.



   (a) If $m + n$ is odd use tile A, otherwise use tile B.

   (b) If $m + n$ is even use tile A, otherwise use tile B.

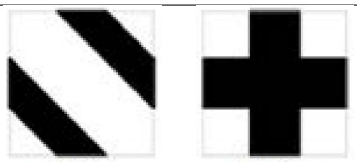
   (c) If $m \times n$ is odd use tile A, otherwise use tile B.

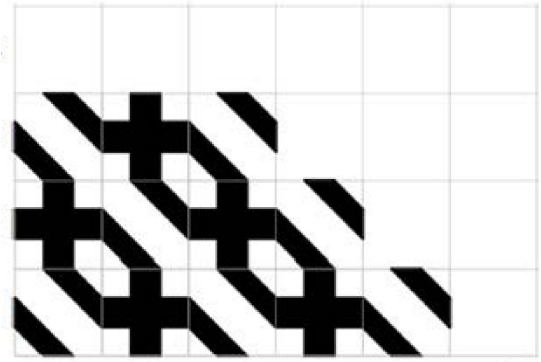
   (d) If $m \times n$ is even use tile A, otherwise use tile B.

   (e) If m is odd and n is odd use tile A, otherwise use tile B.

   (f) If m and n are both odd or both even use tile A, otherwise use tile B.

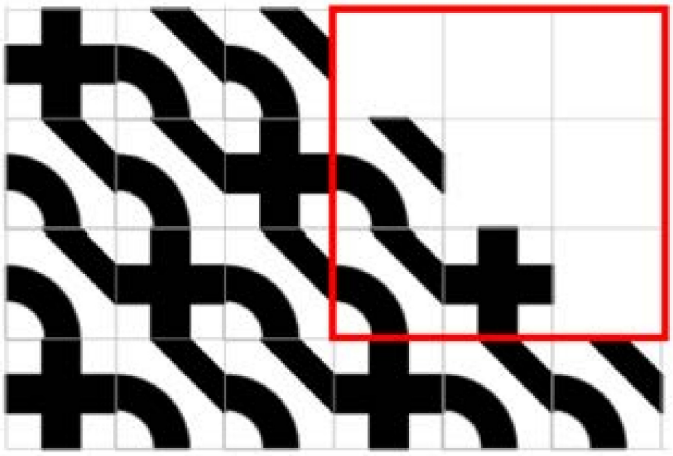
Another way of describing the pattern is to simply write the letters for each time in the corresponding grid position.
Study the use of letters to record the tiling pattern of the previous questions.





A	B	A			
B	A	B	A		
A	B	A	B	A	

The tiling pattern below is created using a combination of two tiles: B and C. Ameer continues to tile the floor by extending the pattern in the same way. Study the pattern.



4. The red square on the grid below corresponds to the red square on the grid just above. Use the letters B and C to record the tile that goes in each position of the red square.