

Assignment 2 Part 1 Why Questions

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The second tiling will run from numbers 121 to 241 because each tiling is 11 by 11 squares so the first one must include all indices between zero and 120 (121 or 11^2 indices). The second tiling has the same number starting from the end of the last.

The first index in each tiling is equal to zero (the smallest index in our current tiling) plus 121 times the number of tilings before this one (based on our numbering scheme the first tile of each tiling is one more than the end of the last).

In the example with $(x=0.1, y=0.1)$ as the input, the coordinates in the eighth tiling lands in the 13th square because for each tiling the coordinate values are offset by one eighth of a tile. Seven offsets (as in the eighth tiling) of $0.6/8$ plus 0.1 pushes both the x and y values into the next tile up and to the right thus landing in the 13th tile.

The final index value of the 13th tile in the 8th tiling is 859. This is because in the eighth tiling you add 121 times the tiling number (zero indexed so the eighth tiling adds 7 time 121) and add the tile number relative to the current tiling.

The highest possible tile index is 967 because it is equal to $(121 * 8) - 1$. 121 for in each tiling, then minus one for starting with an index of zero.