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Question1:

This is because each tiling is 11*11, that is 121 tiles in each tiling. From the the first tile with index 0 to the last tile of the first tiling, it will run from 0 to 120 (because we start at 0). Similarly, in the 2nd tiling, it will run from 121 to 120+121=241 for the 2nd tiling.

Question2:

Based on the answer to Q1, we find if the first index starts from 0, then the following indices should be 0+121 (size of the tiling) =121, 121+121=242, 242+121=363, 363+121=484, 484+121=605, and 605+121=726.

Question3:

The differences between the first 7 indices are all 121, but the difference between the last index and the first 7 indices are greater than 121. The reason is that after each tiling, it will be moved 0.6/ (tiling number) in both directions; that is, the index will be updated in this way: index = int (x/0.6) + (int(y/0.6)*11)

x+=0.6/numTilings

y+=0.6/numTilings

for each tiling. In the 8th updating, y will be 0.1+(0.6/8)*8 > 0.6, hence, (y/0.6)*11 >= 11, index=int(x/0.6)+(y(in2/0.6)*11) = 1+11 = 12; hence, the point is updated to 13th (because the index start at 0) tile in the last tiling.

Question4: The reason is that form the first tiling: the index of the

13th tile in the 8th tile is 0+121+121+121+121+121+121+121+12=859.

Question5: The reason is the last index in the 8th tiling is 0 + 121*8 – 1(because it starts at 0) = 968-1=967.

Question6:

The return of our function: Tile indices for input (4.0 , 2.0) are : [39, 160, 281, 403, 524, 645, 777, 898]

Tile indices for input (4.0 , 2.1) are : [39, 160, 281, 403, 535, 656, 777, 898] There are many tiles in common because the inputs are almost the same. Although, the 5th and 6th indices have a little bit of difference, after that the indices come to be same. Generally, we say that the two points are near each other and both in the same tile.