

The clumsy tiler C

Fred lays tiles. He has a big 1 metre by 1 metre square tile for part of Sue's new kitchen floor in front of her fridge. But he breaks it as he is putting it down.

Fred can't replace the tile, but he finds four square tiles to fill the space of the big one. He lays three of these tiles perfectly, but as he is putting the last one in place he breaks it.

Fred can't replace these new smaller tiles, so, in the hole where the broken one should have gone, he lays four even smaller tiles. He lays three of these tiles perfectly. but as he is putting in the last one he breaks it.

This happens another two times. How many possible ways could Fred have laid the tiles on Sue's kitchen floor?

How many possible ways could Fred have laid the floor if he broke 100 tiles?

