

Maths Circle India

TIFR-STCS Maths Circle Team

Session 3: May 20, 2022

3 Tilings

Arun's friend Barun has moved into a new house and he invites Arun for the housewarming party. But Barun tells him that they're facing a problem. His room still needs to be tiled. "The floor my room is an 8×8 square. Weirdly enough, my parents have already purchased L-shaped tiles, each tile being made of three 1×1 square tiles. Barring this single square unit on the floor, where we'll have a huge Beyblade stadium installed, we need to tile the room's floor with these L-shaped tiles."

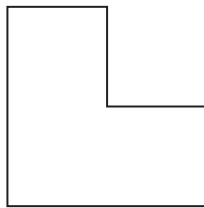


Figure 1: The L-shaped tile made of three 1×1 square tiles

Can Arun help Barun tile his 8×8 room using L-shaped tiles while ensuring that the single square (specified by Barun) remains un-tiled on the floor? Or is this impossible? What about a smaller 4×4 room? Or a larger 16×16 room?