

Tilings and Patterns: Homework 5 (2.10.2023)

1. A domino is 2×1 rectangle. For each of the seven frieze groups, find a monohedral tiling of the plane by dominoes that has this group as the symmetry group.
2. Prove that every hexagon with three pairs of equally long parallel sides is a prototile of a monohedral tiling.
3. Prove that every triangle and every quadrilateral (that is, 4-gon) is a prototile of a monohedral tiling.
4. Prove that the symmetry group of an n -isohedral tiling is a wallpaper group.
5. Converse to the previous problem: show that a k -hedral tiling whose symmetry group is a wallpaper group is n -isohedral, for some n .
6. Determine the symmetry groups of the 11 archimedean tilings.
7. Determine the transitivity classes of the 11 archimedean tilings.