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Plane symmetry groups and their applications

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Group theory, which is considered to be one of abstract concepts of Mathematics, has many applications in various fields, especially in Art and Architecture where the theory of plane symmetry groups plays a major role. This paper discusses plane symmetry groups, also known as planar crystallographic groups or wallpaper groups. The seventeen unique plane symmetry groups describe the symmetries found in two-dimensional patterns such as those found on weaving patterns, the work of the artist M.C. Escher, and in wallpapers. We discuss the fundamental components and properties of plane symmetry groups and how group theoretical concepts are used to create new wallpaper patterns.

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