

A survey of plane tilings

A *tiling* of a region R in the plane is a covering of R with nonoverlapping smaller regions called *tiles*. A jigsaw puzzle is an example of a tiling problem, though not very mathematical. We will survey some mathematical aspects of the theory of plane tilings involving such questions as (1) Is there a tiling? (2) How many tilings are there? (3) Approximately how many tilings are there? (4) Is a tiling easy to find? (5) Is it easy to prove that a tiling doesn't exist? (6) Is it easy to convince someone that a tiling doesn't exist? (7) What does a "typical" tiling look like? (8) What relations hold among different tilings? (9) What if we need infinitely many tiles? Most of the talk should be accessible to a general mathematical audience.