

1 POLYNOMINOES

A polynomino is a polygon made from squares of the same size, connected so that each square that touches another square does so only on a complete side.

1.1 triominoes

A triomino is a polygon made from three squares of the same size, connected so that each square that touches another square does so only on a complete side.

How many different triominoes can you find? ¹ Draw them.

What kind of symmetry do each of the triominoes have? (Rotational? What angle? Reflectional? How many lines of symmetry?)

Which triominoes tessellate the plane? Show a tessellation for each of the triominoes (when possible).

¹There are two.

1.2 tetrominoes

A tetromino is a polygon made from four squares of the same size, connected so that each square that touches another square does so only on a complete side.

How many different tetrominoes can you find? ² Draw them.

What kind of symmetry do each of the tetrominoes have? (Rotational? What angle? Reflectional? How many lines of symmetry?)

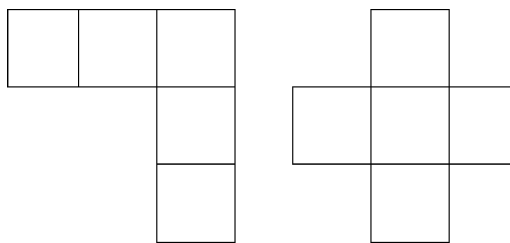
Which tetrominoes tessellate the plane? Show a tessellation for each of the tetrominoes (when possible).

²There are five.

1.3 pentominoes

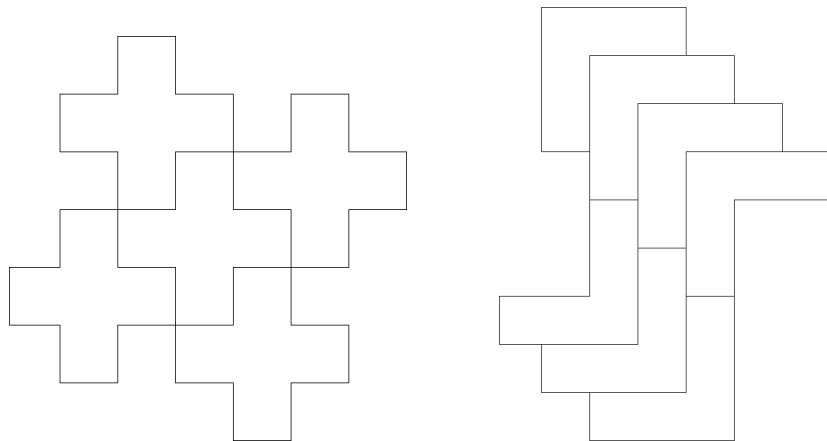
A pentomino is a polygon made from five squares of the same size, connected so that each square that touches another square does so only on a complete side.

Here are two of the twelve different pentomino shapes that are possible.



1. Find the other ten pentominoes (two pentominoes are considered the same if one can be obtained from the other by rotation or reflection).

Attractive tile patterns can be developed using pentominoes. Quadrille paper helps when drawing them. Here are several patterns using two of the pentomino shapes.



2. Pick two of the pentominoes that you found and draw the corresponding tiling patterns that can be developed from them.

3. Which of the twelve pentominoes could be folded to form a box with no lid? (You should be able to find eight pentominoes, and you should be able to explain how to fold them up to a box for at least 4 of them.)