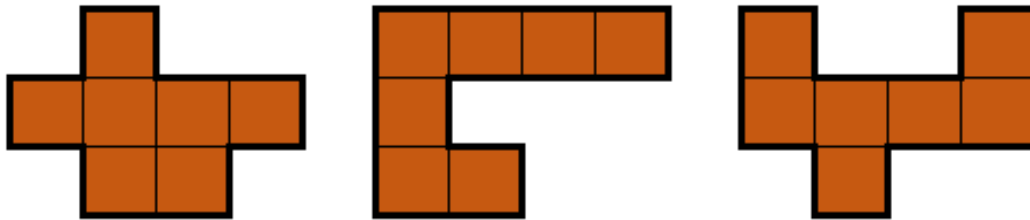




PROBLEM OF THE WEEK #8
(Fall 2022)

A **glob** is a polygon like a Tetris piece, but made out of 7 squares instead of four. Three example globs are shown in the figure below: each comprises 7 squares of the same size, attached edge-to-edge to form a single polygon.

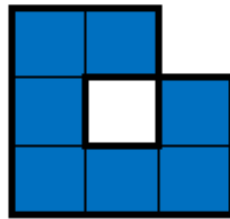


It is known that there are exactly 108 different globs. Is it possible to tile a 28×27 rectangle using each glob exactly once?

Solution:

It is not possible.

Proof. One of the globs has a hole in it, and if you have to use that glob, you can't tile any shape that doesn't have a hole in it. \square



Remark. A glob is usually called a “heptomino.”

Source: “Heptomino,” <https://en.wikipedia.org/wiki/Heptomino>