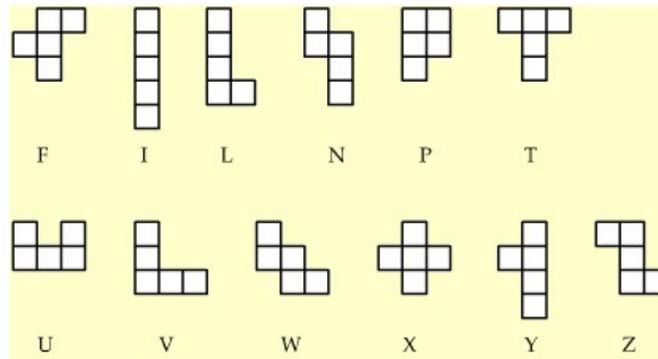


Pentominoes Around the Office

Pentominoes, the collection of 12 shapes you can make by joining five squares along complete edges, were first brought to wide attention by Solomon Golomb in the 1950s. You can think of them as the great-grandchildren of the domino, the familiar two-square shape. Pentominoes are known individually by the letters they resemble and a full set is shown below.

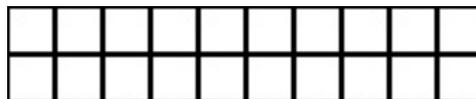


We've picked puzzle grids, the outlines of which resemble familiar shapes found in a typical office. They are the bookmark, the index card and the office copier. Your job is to fill the grids with a selection of different pentomino pieces, rotating and flipping them as necessary. For example, one way to fill the bookmark is shown below.



Notice that we put the "skeletons" of the four pieces, P, Y, I and L, in the grid. This suggests a way for you to work these puzzles without having a set of pentominoes. On page 3 below you'll find a set of grids to scribble on.

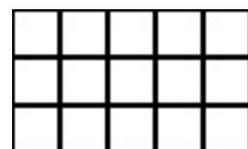
The Bookmark



1. We think there is only one other combination of pieces that will fill the 2 x 10 grid. Can you find it?

The Index Card

2. Easy. We think there are only 7 solutions. Rotations and reflections of one solution do not count as others. Can you find one solution?



3. Harder. Can you find the two solutions that avoid using the P?

The Office Copier

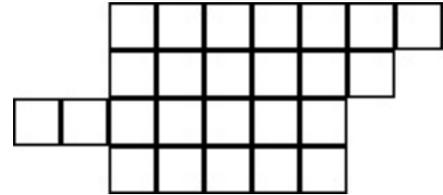
4. Easy. Can you find a solution? The choice of 5 pieces is up to you.

5. Harder. Can you find a solution that doesn't use I?

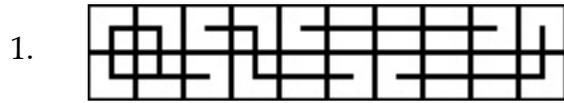
6. Harder still. Can you solve it without I and without W?

7. Even harder still. Can you solve it with no I, no W and no P?

We have no idea how many solutions the copier might have. If you have a rainy weekend indoors, and make further progress on this, we expect a report.



Solutions



Find 4 more with P.



Find one more without P.

