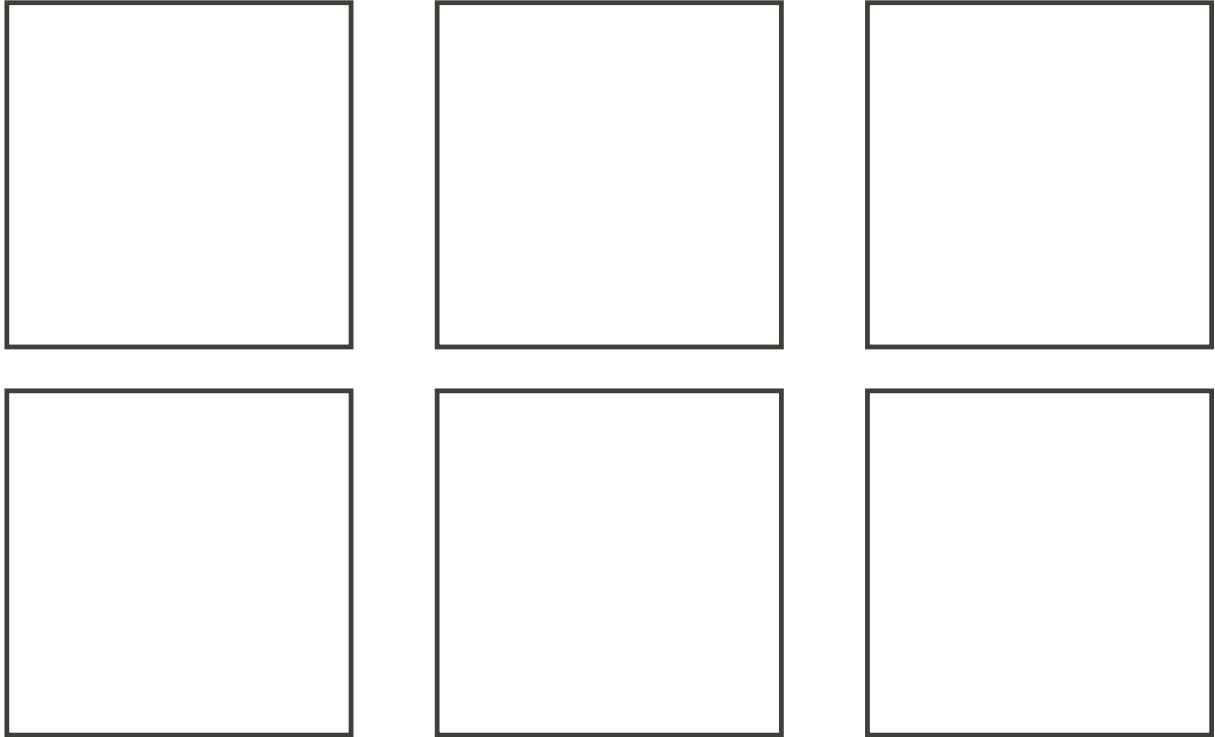


Problem

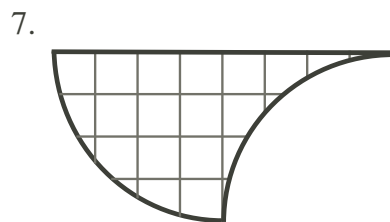
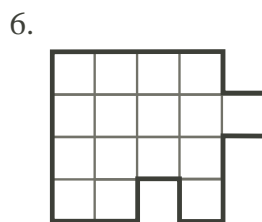
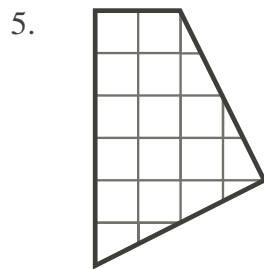
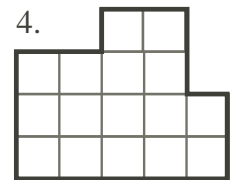
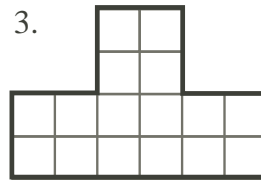
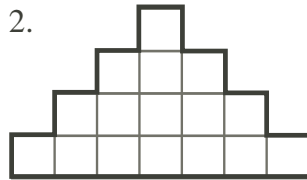
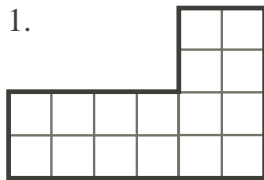
a) Show six ways to divide a square into four congruent pieces, using only straight lines.



b) See how many more ways you can discover.

Extension:

1. For each template, discover whether four identical shapes of the same size could create a square. If so make a sketch showing how the four identical shapes create the square.



2. Create a template of your own, four of which can be used to create a square.

Hints

Hint 1 - Can your congruent pieces have shapes other than squares, rectangles, or triangles?

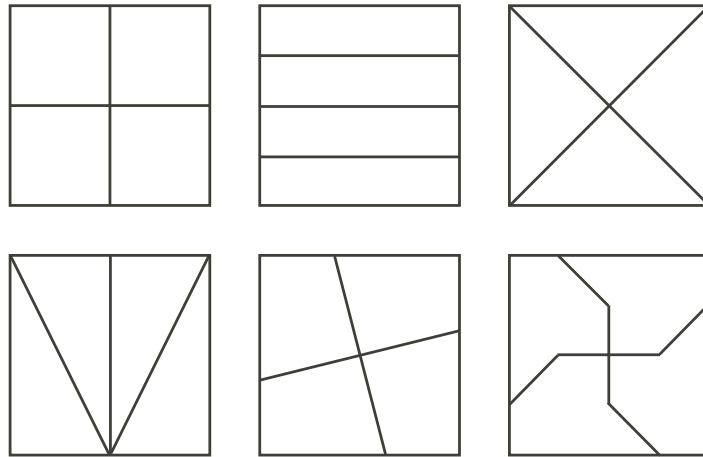
Suggestion: Provide the students with graph paper or geopaper if desired.

Extension:

Suggestion: Carefully cut out four of each shape and try to assemble them into a square. Mark the top side with an “X”, and do not ‘flip’ the pieces. Supply students with graph paper so they can sketch their solutions accurately.

Solution

Six ways to divide a square into four congruent pieces are shown below. Once students discover either of the last two, they will realize there are countless ways to do this subdivision, using symmetrical divisions of the square with lines intersecting at the centre.



Extension:

Templates 1, 2, 3, 4, 5, and 7 can each be used to form an 8×8 square.

