FINDING THE POLYOMINOES

Polyominoes

Fill in the blanks in some of the statements. Make some drawings on the grids.
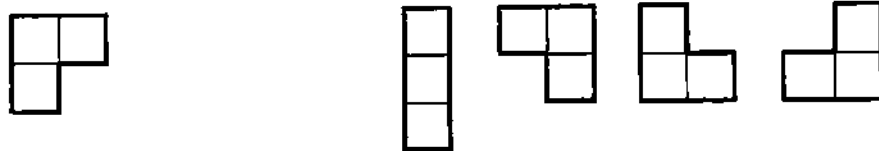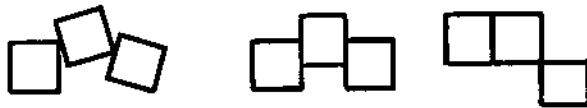
1. This is a domino. It is made up of two squares.

2. This is the straight triomino. It is made up of _____ squares.
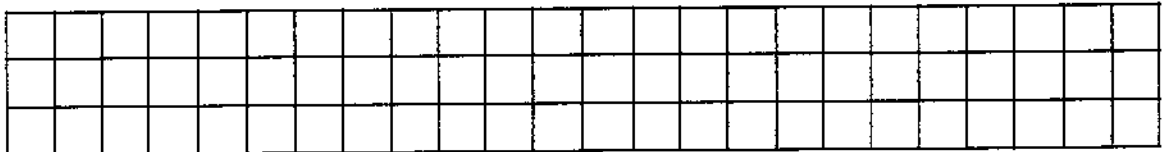
3. This is the bent triomino. There are only 2 triominoes. The following are the same ones, but in different positions.

4. These are not triominoes. The squares are not joined edge-to-edge.

5. A tetromino is made up of 4 squares joined edge-to-edge. Draw one.

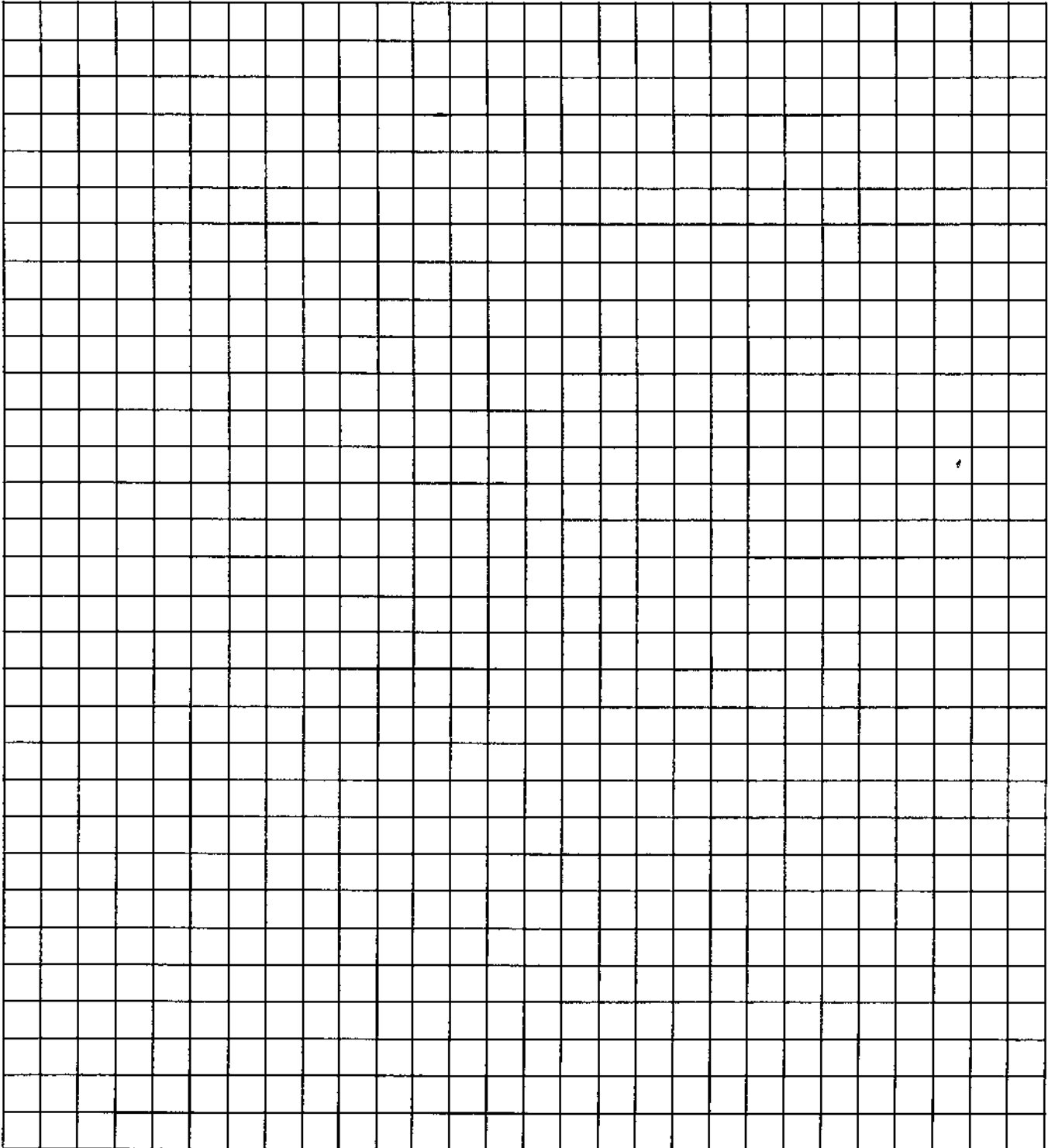6. A pentomino is made up of _____ squares joined edge-to-edge. Draw one.

7. A hexomino is made up of _____ squares joined edge-to-edge. Draw one.

All of these shapes are called polyominoes. A polyomino is any figure made up of squares that are joined edge-to-edge.
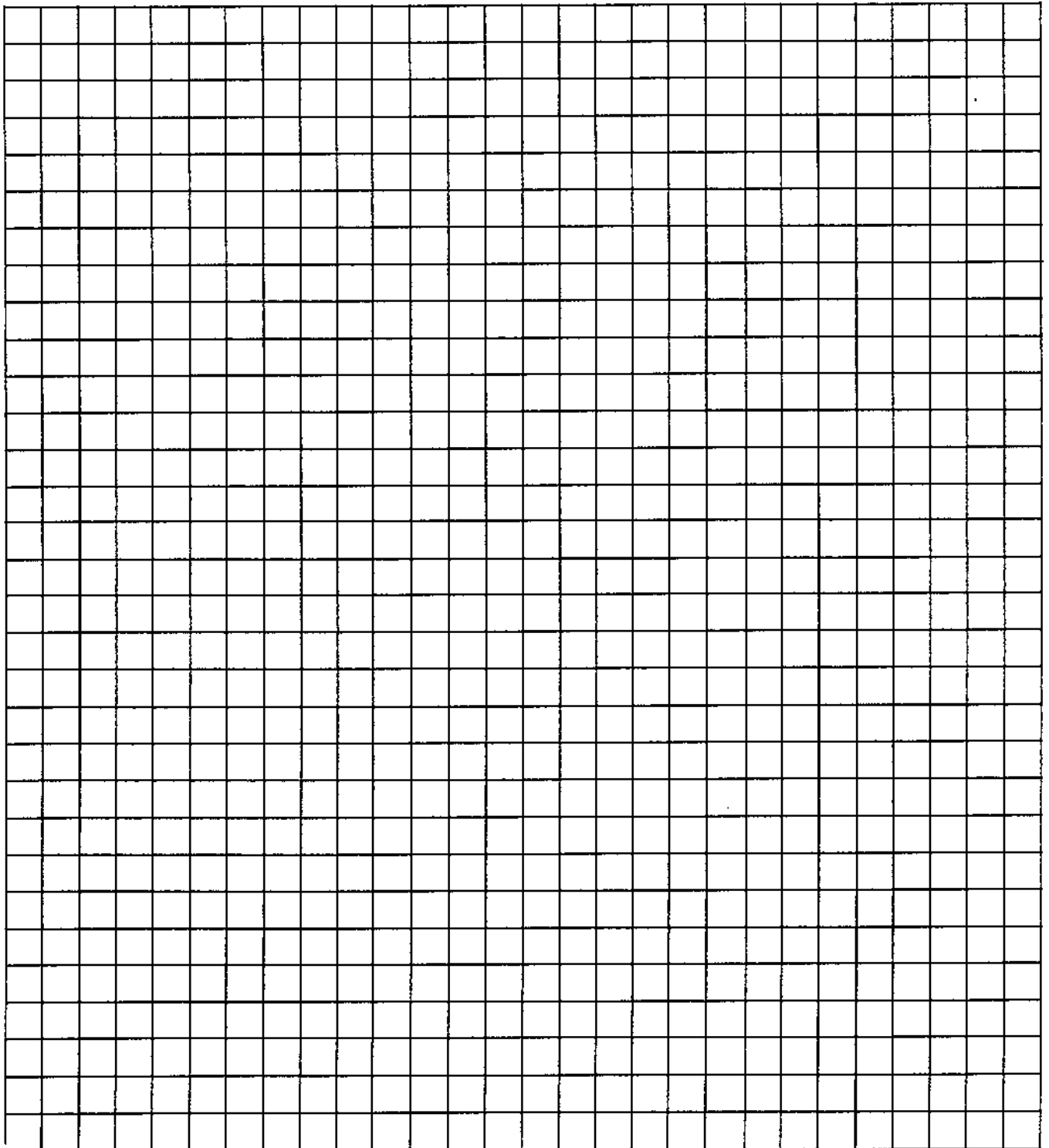
3

Tetrominoes

Use this grid to find and draw all the tetrominoes. Make sure you do not show the same one twice. ★
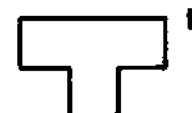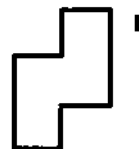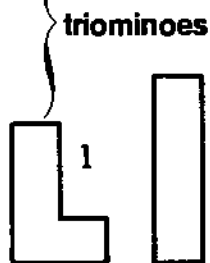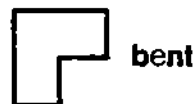
Pentominoes

Use this grid to find and draw all the pentominoes. Make sure you do not show the same one twice. ★
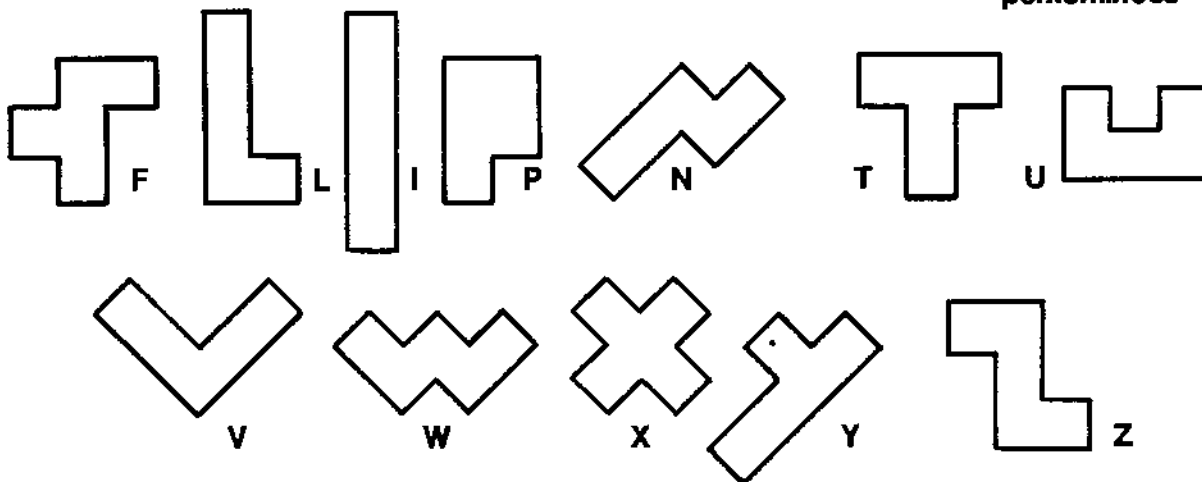
Polyomino Names

People often give names to the polyominoes. The names that will be used in this book are shown in the figure below. They are easy to remember, and you should learn them. Note that the lower case letters refer to the tetrominoes, while the capital letters refer to the pentominoes.

monomino

domino

straight

bent

triominoes

square

l   i   n   t   tetrominoes

pentominoes

F   L   I   P   N   T   U

V   W   X   Y   Z
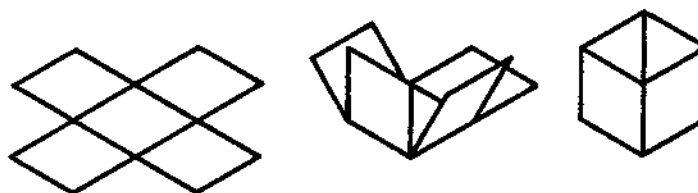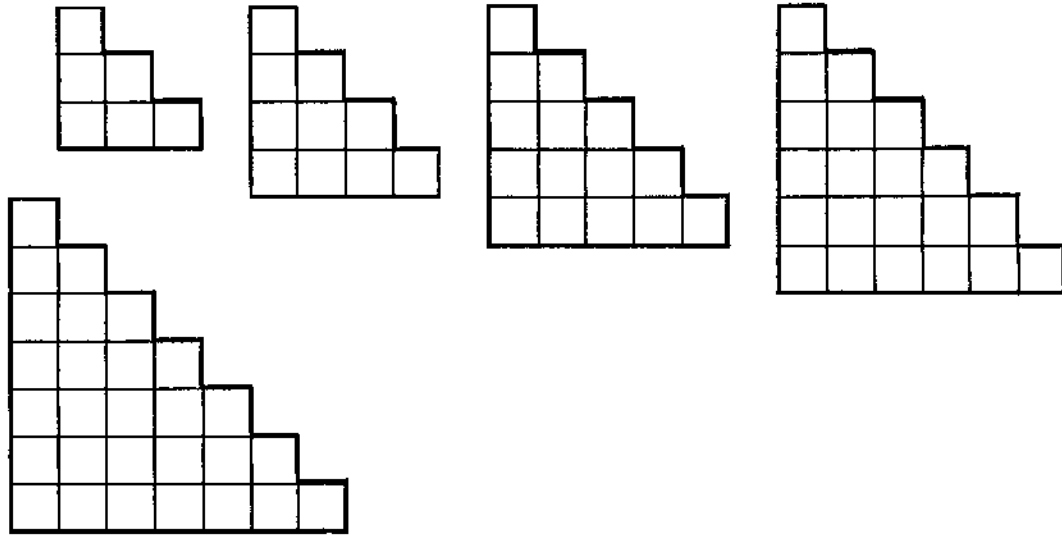
If you cut out paper pentominoes, which ones can be folded into a box without a top? ★ _____

Example: folding the X

Some Polyomino Puzzles

1. Use the domino, triominoes, and tetrominoes to cover the figures below. Imagine how different shapes might fit. Then draw them on the figures. Never use the same polyomino more than once in the same figure.
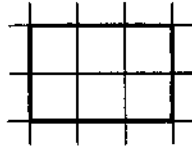
2. Each of the 5 x 5 squares below contains a pentomino. It is shaded. In each square, divide the remaining area into the five distinct tetrominoes. The first one has been started for you.
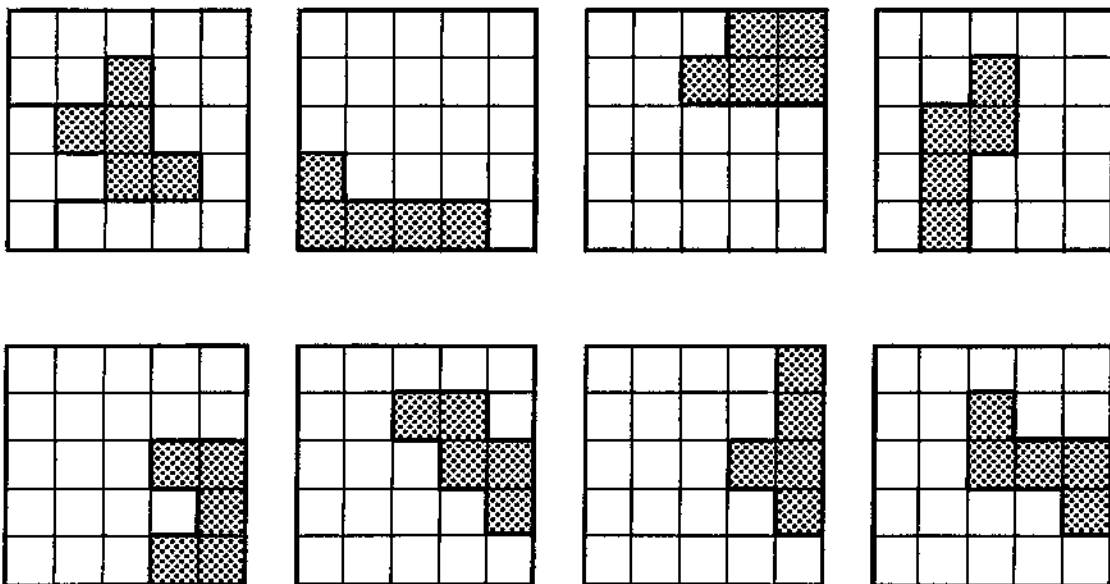
Making Polyomino Rectangles

This is a 2 by 3 rectangle. Its dimensions are 2 and 3. (That is, its sides are 2 units by 3 units.) Its area is 6 square units.

1. On the grid below draw all the rectangles, including squares, with area 28 or less. Their dimensions should be whole numbers greater than 1. Use more grid paper if you need it. ★

2. Now use the domino, triominoes, and tetrominoes to cover these rectangles. Don't use the same polyomino more than once in the same figure. You will need to use a single monomino in one of the figures, but only one. ★