

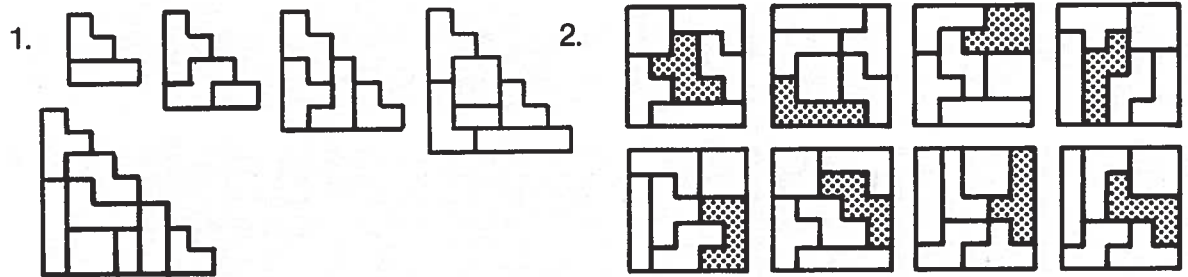
SOLUTIONS

Tetrominoes, page 4,
See *Polyomino Names*, page 6.

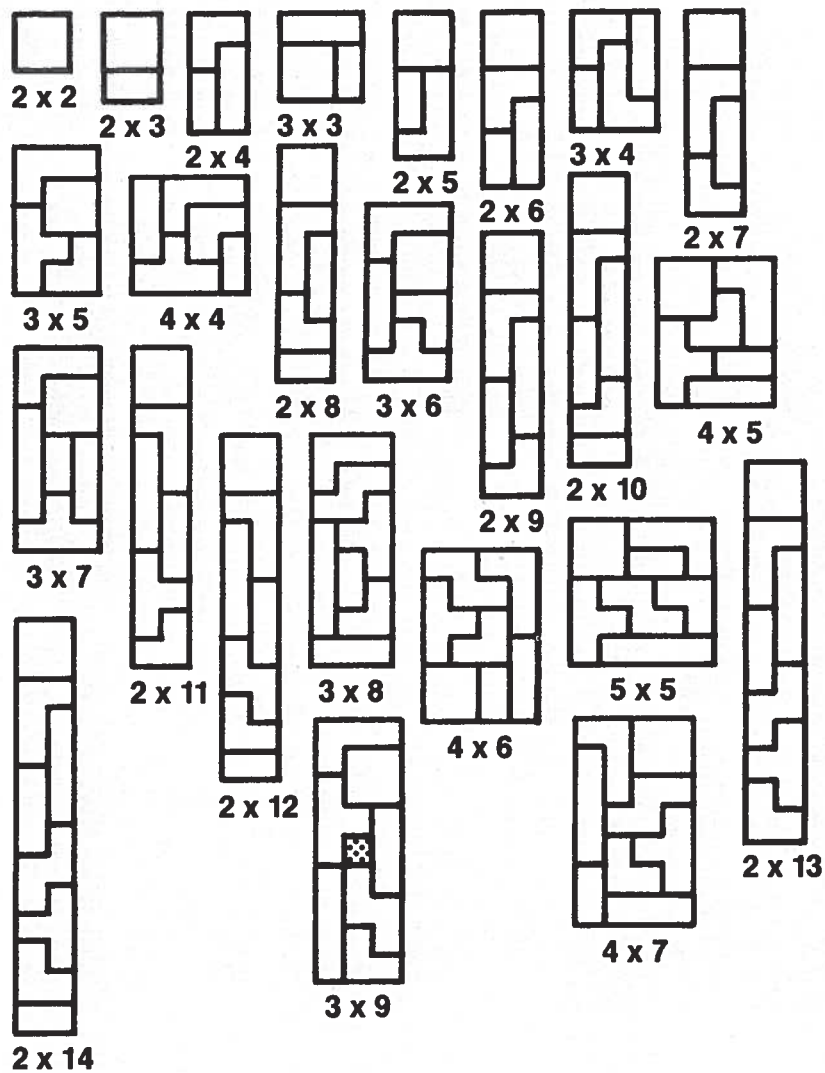
Pentominoes, page 5
See *Polyomino Names*, page 6.

Polyomino Names, page 6
F, L, N, T, W, X, Y, Z

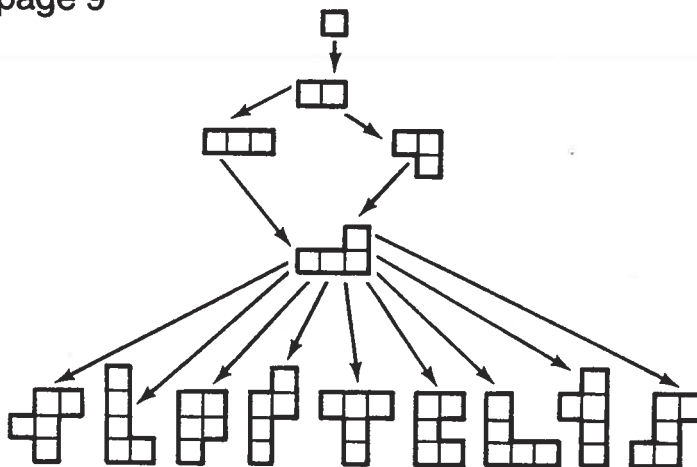
Some Polyomino Puzzles, page 7



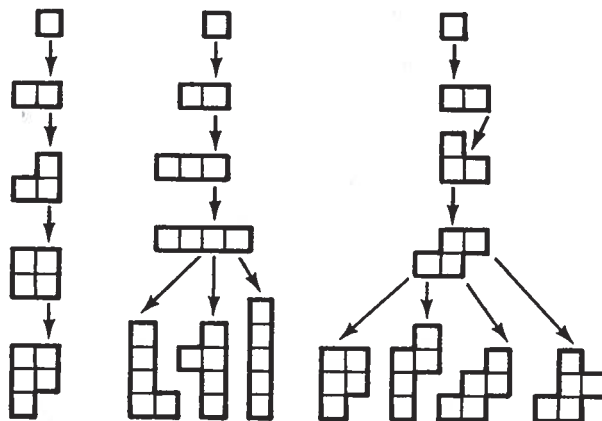
Making Polyomino Rectangles, page 8



Family Trees, page 9



Family Trees, page 10



Pentomino Family Relationships, page 11

1. The P has 4 parents.
2. L and Y
3. F, N, P
4. only the W
5. I and W
6. The L has 11 children.
7. The X has only 2 children.

Envelopes, page 12

1. 1×4 i
2. 2×2 square
3. 3×2 n, l, t

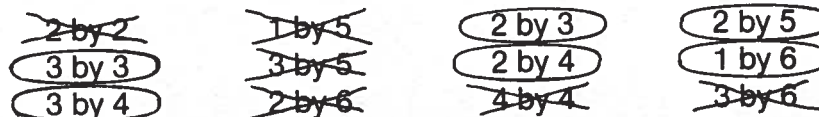
Pentomino Envelopes, page 13

1. 1×5 I
2. 2×3 P, U
3. 2×4 L, N, Y
4. 3×3 F, T, V, W, X, Z

Hexominoes, page 14

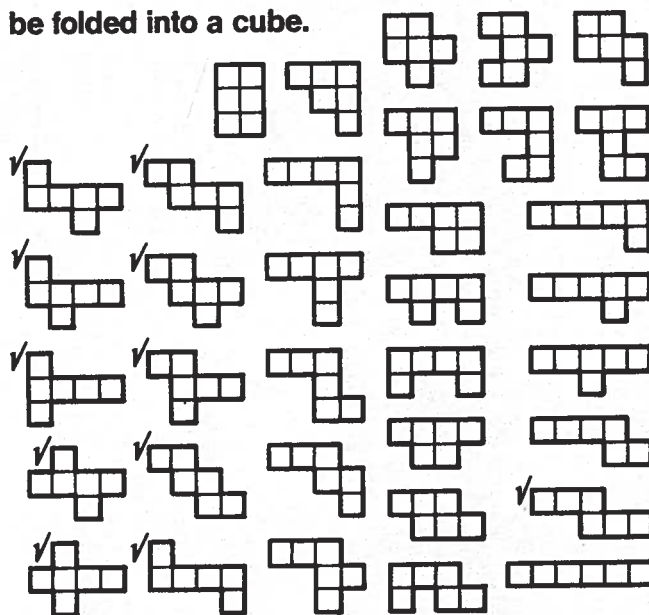
There are 35 hexominoes.

Hexomino Envelopes, page 15

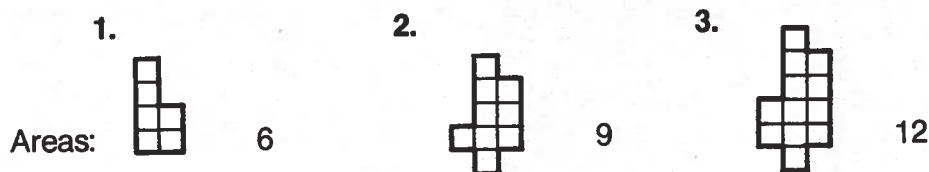


Classifying the Hexominoes, page 16

✓ = Can be folded into a cube.

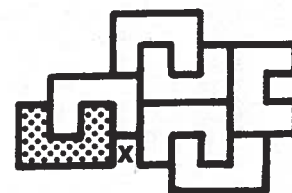


Minimum Covers, page 17

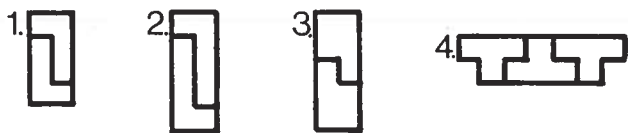


Tiling with Other Polyominoes, page 19

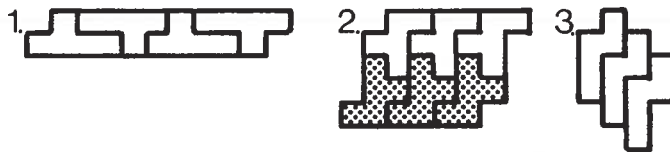
1. yes—Extend the horizontal stripe in both directions, and copy it above and below.
2. no—The only way to fill the space inside the U on the left is to add the shaded U. But this creates a space — x — that can't be filled by a U.



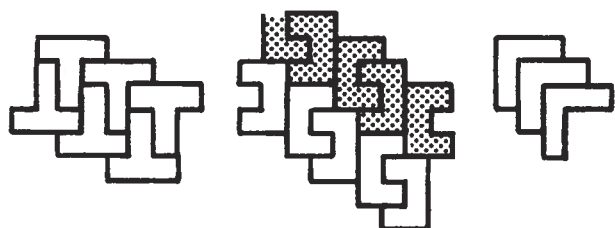
Tiling, page 20



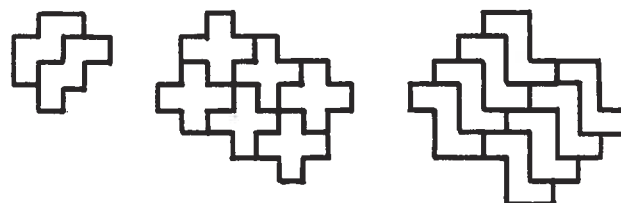
Tiling with Pentominoes, page 21



Tiling with Pentominoes, page 22



More Tiling with Pentominoes, page 23



Tiling Rectangles, page 27

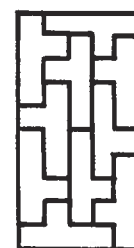


2 by 4 4 by 4

The n tetromino doesn't tile.



2 by 5 2 by 5



5 by 10

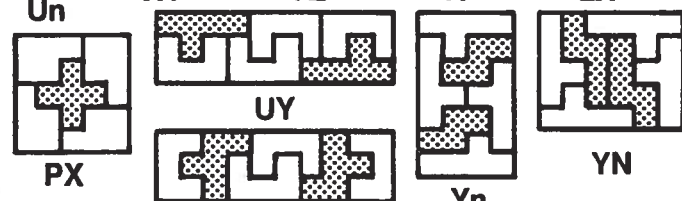
Tiling with Polyomino Pairs, page 28



UX VZ TY UN VF VN

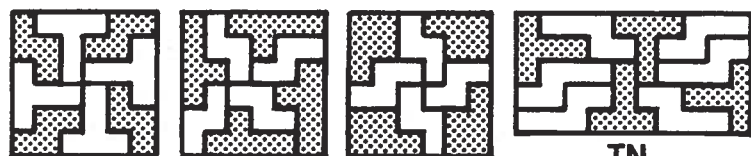


Un XY YZ YF LX

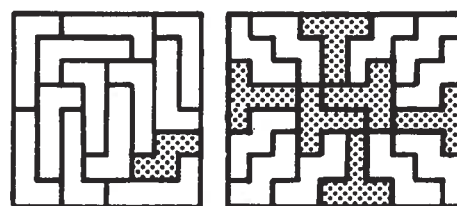


PX UF Yn YN

More Tiling with Polyomino Pairs, page 29



Tn Yn Pn TN



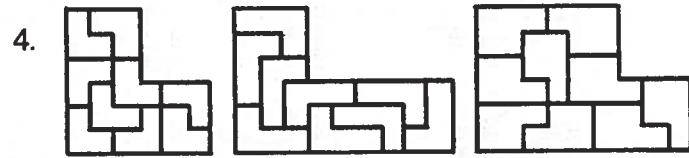
Ln TW

Rep-tiles, page 30



2. 4

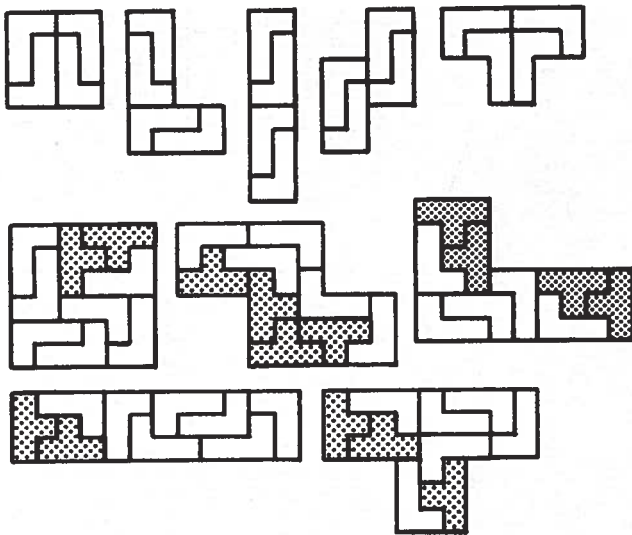
3. 4



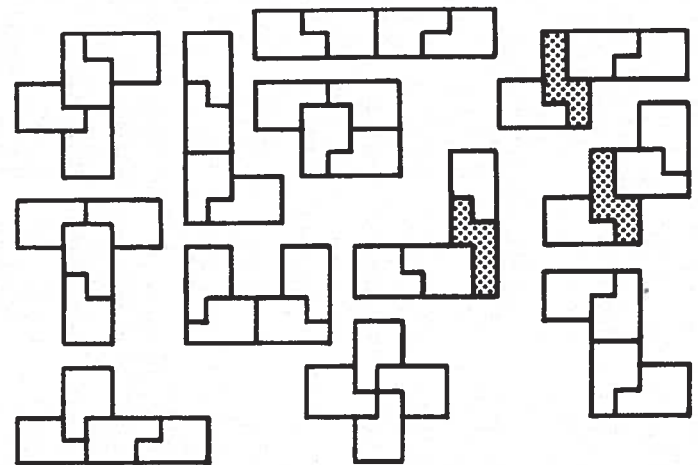
5. 9

6. 9

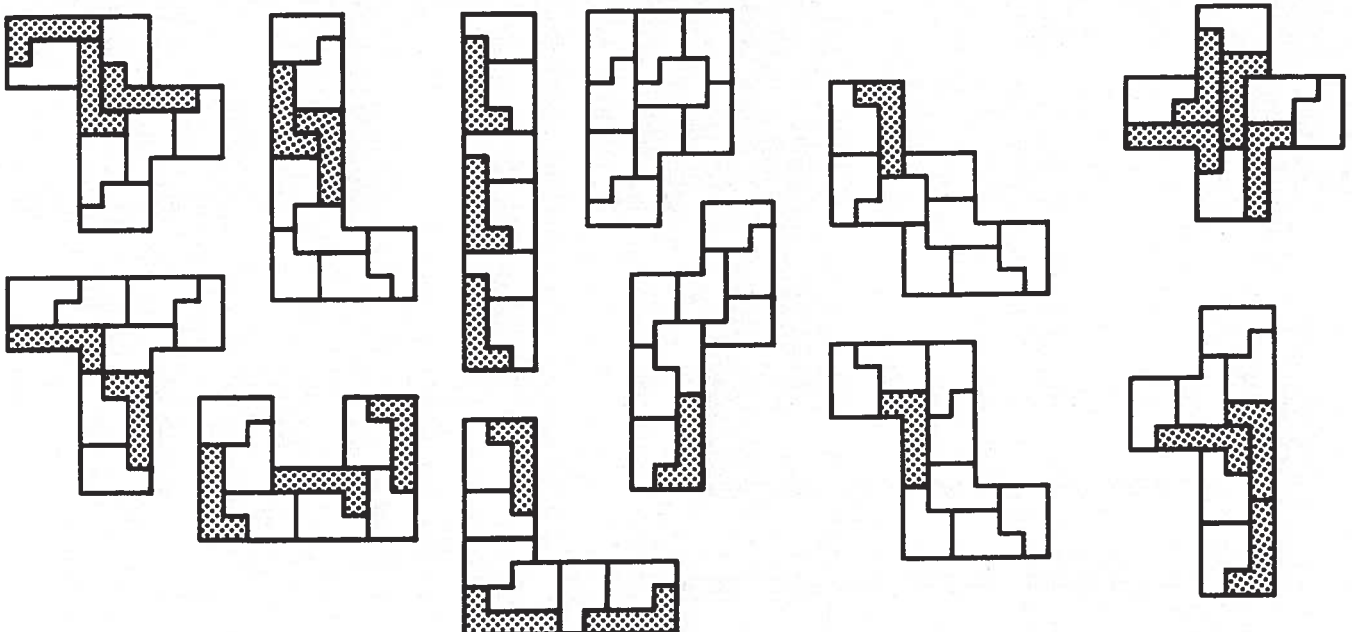
Doubled and Tripled Tetrominoes, page 31



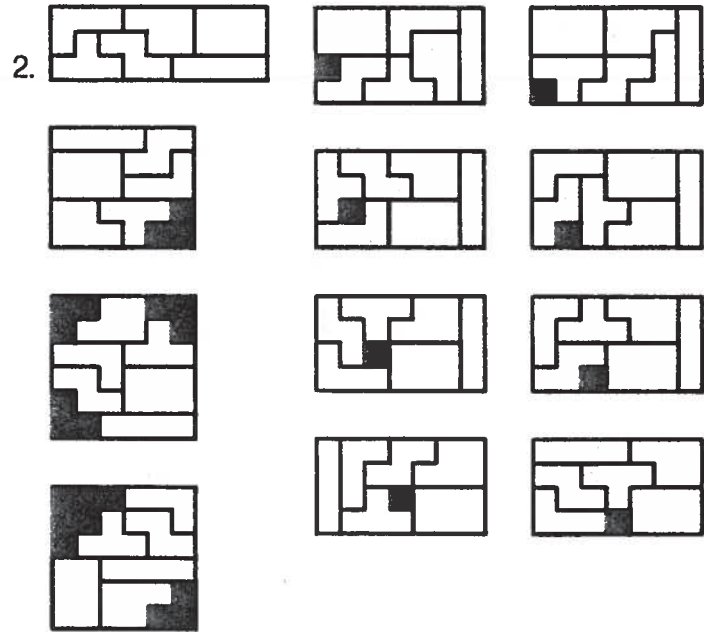
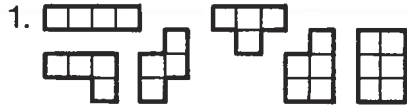
Doubled Pentominoes, page 32



Tripled Pentominoes, page 33



Perimeter 10, page 34



Perimeter and Area Table, page 35

1. no

2.

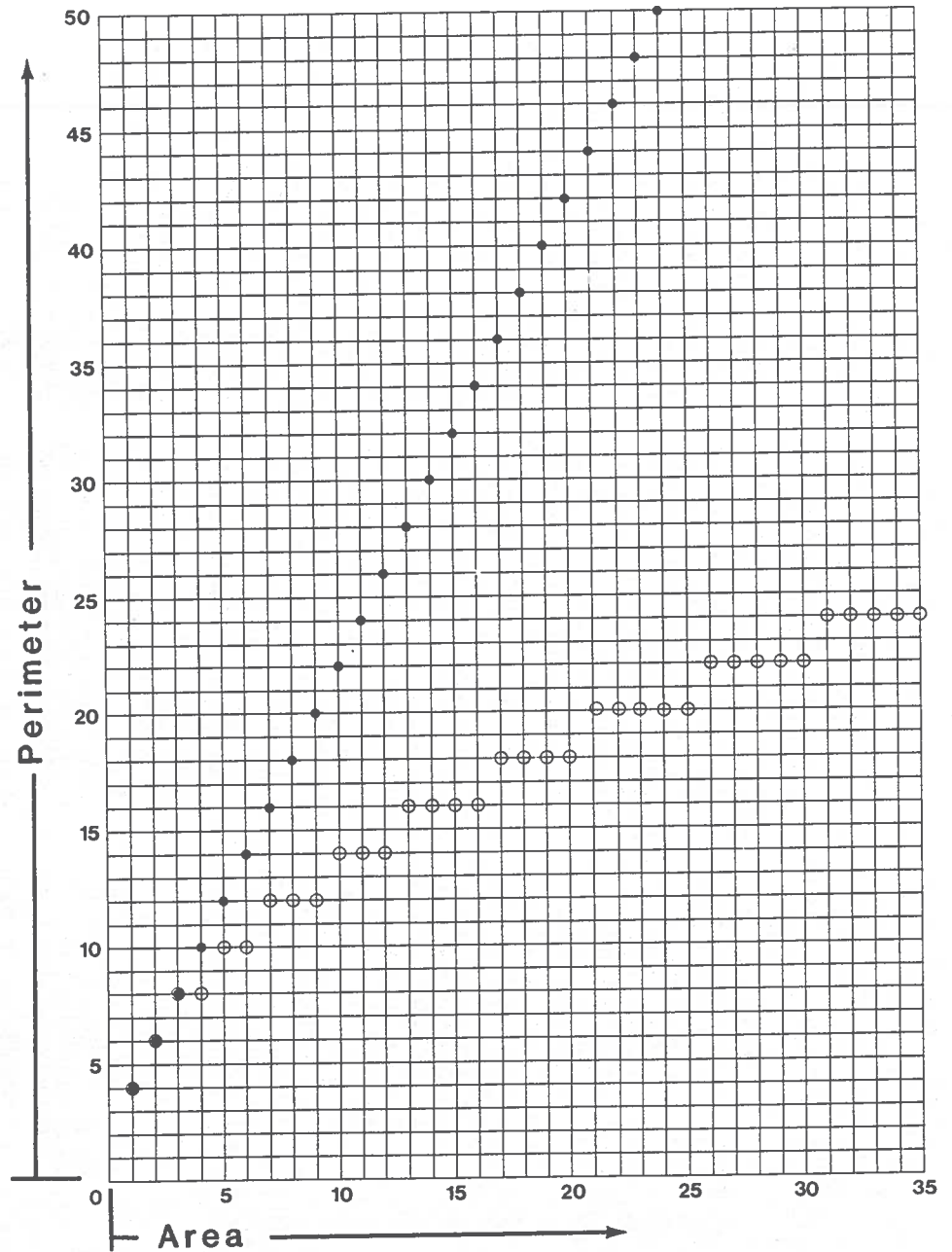
AREA	PERIMETER	
	Shortest	Longest
1	4	4
2	<u>6</u>	<u>6</u>
3	<u>8</u>	<u>8</u>
4	8	10
5	<u>10</u>	<u>12</u>
6	<u>10</u>	<u>14</u>
7	<u>12</u>	<u>16</u>
8	<u>12</u>	<u>18</u>
9	<u>12</u>	<u>20</u>
10	<u>14</u>	<u>22</u>
11	<u>14</u>	<u>24</u>
12	<u>14</u>	<u>26</u>
13	<u>16</u>	<u>28</u>
14	<u>16</u>	<u>30</u>
15	<u>16</u>	<u>32</u>
16	<u>16</u>	<u>34</u>
17	<u>18</u>	<u>36</u>
18	<u>18</u>	<u>38</u>
19	<u>18</u>	<u>40</u>
20	<u>18</u>	<u>42</u>
21	<u>20</u>	<u>44</u>
22	<u>20</u>	<u>46</u>
23	<u>20</u>	<u>48</u>
24	<u>20</u>	<u>50</u>

Perimeter-Area Predictions, page 36

3. 74 82 202 200 204
 4. See *Perimeter-Area Formulas* on page 38.
 5. 24 26 40 40 42

Perimeter-Area Graphing, page 37

1. They lie in a straight line.
2. no



Eyes, page 38

1. Tetromino: square l i n t
 Eyes: 1 0 0 0 0
 Perimeter: 8 10 10 10 10
2. All have 0 eyes and perimeters of 12, except the P, which has 1 eye and a perimeter of 10.
4. Figure: a b c d e f g
 Area: 12 12 12 12 12 12 12
 Eyes: 0 1 2 3 4 5 6
 Perimeter: 26 24 22 20 18 16 14
5. shorter

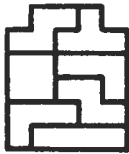
Perimeter-Area Formulas, page 39

2. It decreases by 2.

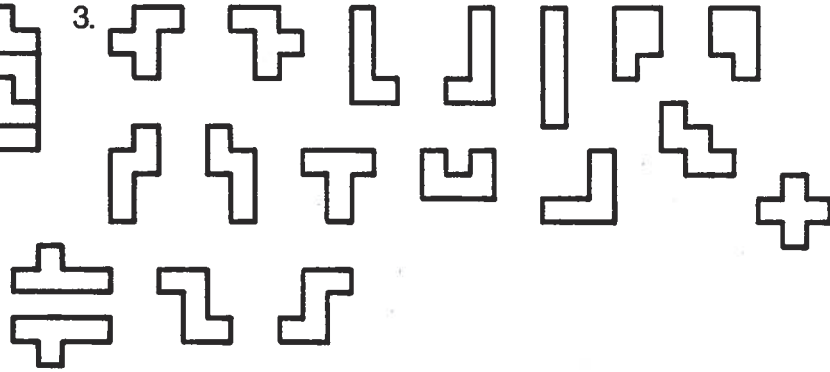
One-Sided Polyominoes, page 40

1. the n

2.

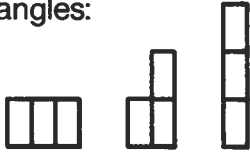


3.

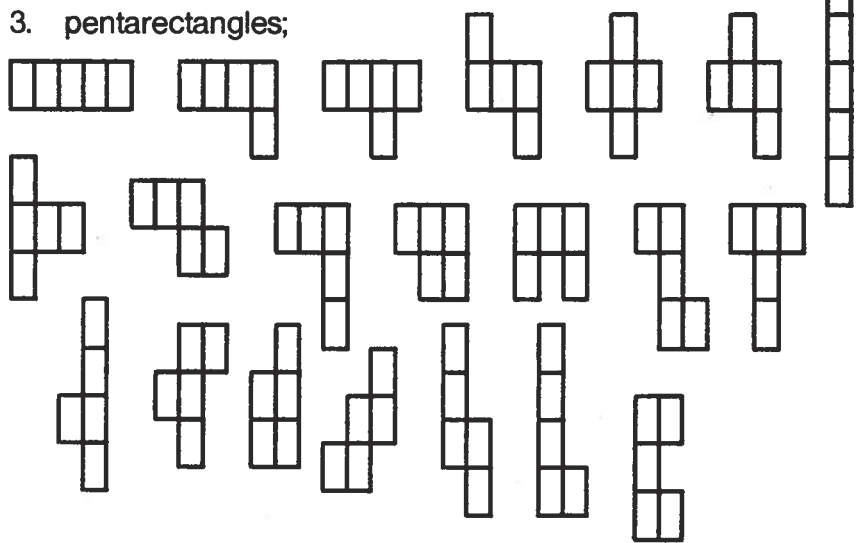


Polyrectangles, page 41

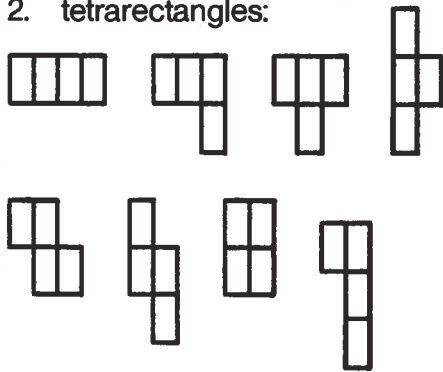
1. trirectangles:



3. pentarectangles:



2. tetrarectangles:



Polytans, page 42

1.



2.

