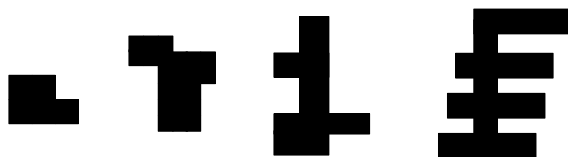
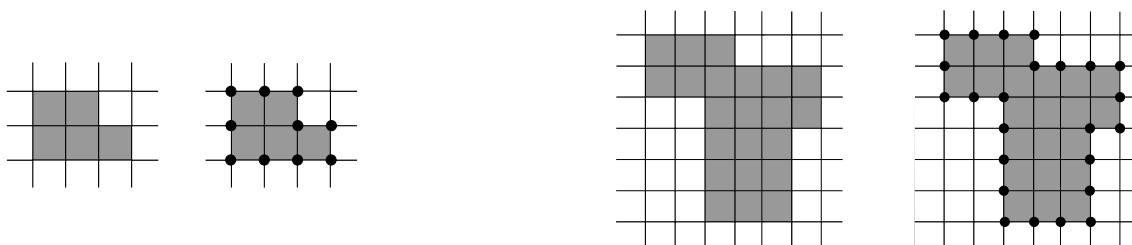


7. Gridimeter

PROBLEM: Given a *rectilinear simple polygon (RSP)*, find its *gridimeter*. An RSP is a simple polygon (i.e. edges only intersect at endpoints and edges only meet at right angles). Here are four examples:



The RSP's gridimeter is similar to the concept of a perimeter, but reports the number of grid intersection points that make up the perimeter when the polygon is superimposed on a grid. In the diagram below, the figure at the left has a gridimeter of 10, and in the figure at right, it's 24.



Each row of the array will be represented by a base 16 number. That number must be converted to base 10. The digits of the base 10 number are then placed right justified into the cells of that row. If there are too few digits, leading zeros are added.

In the 4 x 4 grid on the left, the top row is decimal 110 and would be given as 6E base 16. A leading zero is needed. The second row is decimal 1222 or 4C6 base 16. The third row is 1213 or 4BD base 16. The bottom row is decimal 111 or 6F base 16. Again, a leading 0 is needed.

You will be given a RSP, and you need to report its gridimeter value. The RSP will be given as a 2-dimensional array whose cells contain the number of sides of that cell that are used to form the sides of a simple polygon. Below are the arrays for the two diagrams above:

0	1	1	0
1	2	2	2
1	2	1	3
0	1	1	1

0	1	1	1	0	0	0	0
1	2	1	2	2	1	1	0
1	2	1	0	1	1	2	1
0	1	2	1	0	0	2	1
0	0	1	1	0	1	2	0
0	0	1	1	0	1	1	0
0	0	1	2	1	2	1	0
0	0	0	1	1	1	0	0

In the 8 x 8 grid on the right, the top row contains right justified 1110000 base 10 which is 10EFF0 base 16. A leading 0 was inserted to make it fit. The second row contains 12122110 base 10 which is B8F7FE base 16. No leading 0 is needed.

INPUT: There will be 10 lines of input, each representing a rectilinear simple polygon. Each line will have 2 integers, r and c , giving the number of rows and columns in the grid. Those numbers will be followed by r base-16 numbers; these numbers when converted to base 10, encode the rows, from the top to the bottom.

OUTPUT: For each line of input, print the gridimeter value of the RSP.

FILES ON THE FLASH DRIVES ARE NAMED: [as7-sample.txt](#) and [as7-test.txt](#)

SAMPLE INPUT

```
4 4 6E 4C5 4C5 6E
6 3 A 83 79 79 83 A
3 4 6E 533 6E
3 3 A 8D A
4 4 6E 4C6 4BD 6F
4 5 456 33A5 4CF A
4 5 456 3341 8AD 6E
4 3 83 79 79 83
6 5 2F59 2B03 2EEB 8AD 6E 0
5 5 2F59 2B03 2B67 3413 3F2
```

SAMPLE OUTPUT

```
1. 8
2. 10
3. 6
4. 4
5. 10
6. 10
7. 10
8. 10
9. 14
10. 16
```

7. Gridimeter**TEST DATA**

FILES ON THE FLASH DRIVES ARE NAMED: [as7-sample.txt](#) and [as7-test.txt](#)

TEST INPUT

3 3 19A 64 0

3 3 6F 143 6F

4 4 0 A 83 83

4 4 4C7 529 64 0

4 4 44C 8AC 853 456

4 4 4C6 44E 44E 4C6

5 5 456 3341 C27 3341 456

5 5 334B C9E 32E7 910 64

5 5 2F59 2EEB 840 840 33B1

6 6 2B02 204EB 5277 5277 204EB 2B02

TEST OUTPUT:

1. 4

2. 8

3. 6

4. 10

5. 10

6. 14

7. 14

8. 18

9. 22

10. 22