

## Problem B. Bar of Chocolate

You have a bar of chocolate with a height of  $H$  blocks and a width of  $W$  blocks. Each block has the same length 1, so the bar can be seen as a union of  $H \times W$  squares with same size  $(1 \times 1)$ . You are trying to divide this bar into *exactly* three pieces, and give it to your friends. Because of the bar's structure, you may only cut the bar along borders of blocks, and the shape of each piece must be a rectangle.

Because you want to be fair, you are trying to divide the bar as evenly as possible. More specifically, you are trying to minimize the difference between the area of the largest piece and the area of the smallest piece. The area of a piece is equal to the number of blocks contained in that piece.

Given the size of the chocolate bar, find the minimum difference.

### Input

The input consists of an arbitrary number of records, but no more than 20. Each record is a line containing two positive integers  $H$  ( $2 \leq H \leq 100\,000$ ) and  $W$  ( $2 \leq W \leq 100\,000$ ), the height and the width of the bar of chocolate.

The end of input is indicated by a line containing only the value  $-1$ .

### Output

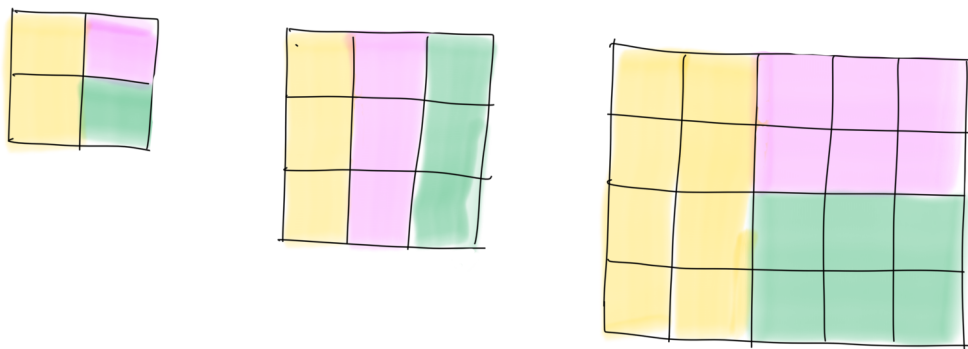
For each input record, print the minimum difference between the area of the largest piece and the area of the smallest piece.

### Example

standard input	standard output
2 2	1
3 3	0
4 5	2
84 19	0
100000 100000	50000
-1	

### Note

The answers for the first three samples:



### Time Limit

2 seconds.