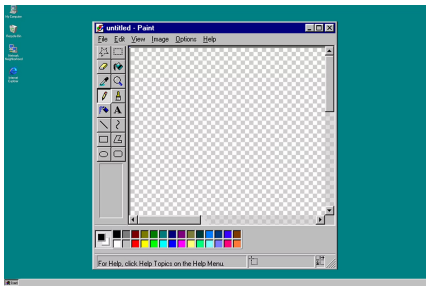
Competitive Programming SS24

Submit until end of contest

Problem: Authentic Art (1 second timelimit)

AI-generated images may look impressive, but can they truly be called authentic art? Let's consider something more traditional: drawing a black rectangle in Microsoft Paint. Unfortunately, your version of Microsoft Paint is outdated and lacks a rectangle tool, so you must draw it pixel by pixel. You can change the color of a pixel by simply clicking on it.



Microsoft Paint in Windows 95.
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Your Microsoft Paint may not have a rectangle tool, but it has something much better: weird bugs. Whenever two black pixels are placed diagonally adjacent, Paint will automatically fill in the two common neighboring pixels, regardless of their current color (see Figure C.1). This will happen not just for user-placed black pixels, but also for black pixels that are produced as a result of the bug. You now think that this glitch could actually be beneficial, potentially allowing you to complete the rectangle with fewer clicks.

Given the width and height of the rectangle you want to draw, what is the minimum number of clicks you need to draw it?

Figure C.1: Two examples which trigger the bug.

Input The input consists of:

- One line with two integers w and h ($1 \leq w, h \leq 10^9$), the width and height of the rectangle.

Output Output the minimum number of clicks you need to draw a $w \times h$ rectangle.

Sample Input 1	Sample Output 1
2 2	2

Sample Input 2

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5 7
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Sample Output 2

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7
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