

A. Domino piling

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a rectangular board of  $M \times N$  squares. Also you are given an unlimited number of standard domino pieces of  $2 \times 1$  squares. You are allowed to rotate the pieces. You are asked to place as many dominoes as possible on the board so as to meet the following conditions:

- Each domino completely covers two squares.
- No two dominoes overlap.
- Each domino lies entirely inside the board. It is allowed to touch the edges of the board.

Find the maximum number of dominoes, which can be placed under these restrictions.

Input

In a single line you are given two integers  $M$  and  $N$  — board sizes in squares ( $1 \leq M \leq N \leq 16$ ).

Output

Output one number — the maximal number of dominoes, which can be placed.

Examples

input

2 4

output

4

input

3 3

output

4

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Beta Round #47

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++17 7.3.0

Choose file: Choose file run.cpp

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ Problem tags

greedy math \*800

No tag edit access

→ Contest materials

Announcement

Tutorial #1



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