# Mattox's Game

Time Limit: 12 Second
Memory Limit: 2048 MB

Mattox just invented a new board game and he invites you to play with him. To make the game more interesting, he promises you to give you free points for the competitive programming class if you can win the game with minimum number of turns.

The game is on an $n \times m$ board ($2 \leq n, m \leq 20$). Mattox's piece is initially at $(1, 1)$, and your piece is initially at $(n, m)$. You and Mattox will play in turn, with Mattox playing first. In each turn, Mattox can move his piece one cell in one of four directions: up, down, left, right, and you can move your piece either one or two cells in one of four directions. The piece cannot move outside the board. A player wins if their piece can eat the opponent's piece by moving into the same cell.

You want to know if you are able to win the game, and if so, the minimum turns you need to win the game because it decides the number of free points you get. Write a program to find out if you can win the game and the minimum turns needed to win the game if both players adopt the best strategy.

## Input

The only line of input contains two integers $n$ and $m$ ($2 \leq n, m \leq 20$) - the size of the board.

## Output

Output a single integer denoting the minimum turns needed to win the game. If you cannot win the game even if you adopt the optimal strategy, output $-1$.

## Sample Inputs

```
2 3
```

## Sample Outputs

```
3
```