Exam Room (examroom)

Giorgio, famous university teacher, tomorrow is going to do the surveillance during his exam of Competitive Programming. In fact, even though the students are usually very honest, there is always someone that tries to cheat. To prevent it, Giorgio is studying a disposition for the students in the room that maximizes the distance between each student.

The exam room is composed by $R \times C$ seats arranged in a rectangle of R rows and C columns. Giorgio wants his students to be arranged in rows and columns as well, but skipping some rows and some columns to space them out. Given a distance factor K, each student must be at least K seats away ($K-1$ seats in between) from the ones in his row and column.

Help him find the maximum number of students that fit inside the classroom.

☞ Among the attachments of this task you may find a template file `examroom.*` with a sample incomplete implementation.

✍ The answer may be too large for a 32-bit integer: use 64-bit integers such as `long long` for C and C++ and `Int64` for Pascal (the templates attached already do it).

Input

The first line contains three integers, R, C and K.

Output

You need to write a single line with an integer: the maximum number of students that fit in the room.

Constraints

- $1 \leq R, C, K \leq 10^9$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (5 points) $K = 1$.

– **Subtask 3** (30 points) $K \leq 2$.

– **Subtask 4** (10 points) $R, C, K \leq 10$.

– **Subtask 5** (10 points) $R, C, K \leq 100\,000$.

– **Subtask 6** (20 points) R and C are multiples of K.

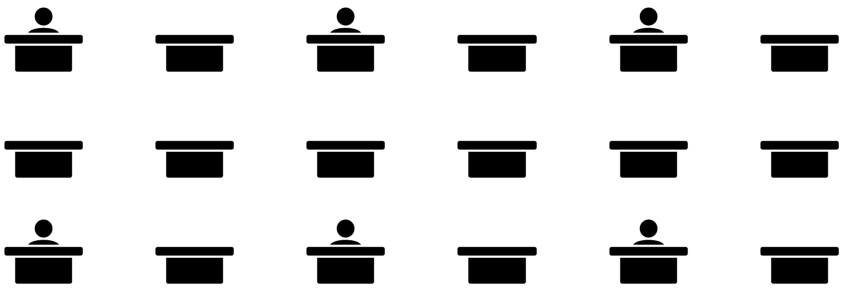
– **Subtask 7** (25 points) No additional limitations.

Examples

input	output
3 6 2	6
3 3 2	4

Explanation

In the **first sample case** there are 3 rows and 6 columns, the students can fit in the first and last row but only on 3 columns, keeping at least one column free between them. This arrangement is shown in this image:



In the **second sample case** the students can fit on the corners of the room, keeping a seat free between them.