CosmoTile

Input file: `standard input`
Output file: `standard output`
Time limit: 1 second
Memory limit: 256 megabytes

In the year 3030, hamsters decided to improve their spaceship. Specifically, they wanted to lay tiles on the floor.

The floor is square with a side length of a meters. Rectangular tiles will be laid on it, and:

- the sides of the tiles must be parallel to the sides of the floor;
- all tiles must be oriented the same way;
- the tiles will be laid tightly against each other;
- the first tile will be laid tightly against the "top left" corner of the floor.

For a better understanding of the tile arrangement, see the illustration in the example.

The hamsters have at their disposal:

- a 3D blueprint of the rectangular tile with dimensions a meters by b meters (the thickness is so small that it can be neglected);
- a 3D printer that can print any number of tiles;
- an ultra-thin and ultra-precise laser that can cut tiles without leaving any waste;
- a reducing laser that can reduce any tile by any integer x times, but the value of x must be at least 1 and at most k;
- boundless energy to lay the tiles as described above.

The hamsters' plan is as follows:

- Choose a number x;
- Print the minimum necessary number of tiles;
- Cut some tiles so that using the resulting pieces of tile (considering further reduction) they can cover the entire floor. Each tile can be cut no more than once, only along a straight line parallel to the side of length a, and if cut at a distance of r meters from the side of length a, two pieces of tile will result: one with dimensions a by r meters and the other with dimensions a by $b - r$ meters. The resulting pieces cannot be cut further;
- The pieces of tile that will ultimately be laid on the floor should be reduced by x times (that is, both the length and the width of the piece of tile will be reduced exactly by x times);
- Lay the tiles as described above.

The hamsters are economical but maintain symmetry in the pattern. Therefore, if cutting a tile into two pieces results in pieces of the same size, both pieces are used (for better understanding, see the illustration in the example when $x = 3$).

The hamsters have tasked you with choosing x in such a way that the total area of the unused pieces of tile is minimized. What is this minimum total area?

Input

The first line contains the integer a—the length of the side of the floor and the first side of the tile ($1 \le a \le 2 \cdot 10^6$).

The second line contains the integer b—the length of the second side of the tile ($1 \le b \le 2 \cdot 10^6$).

The third line contains the integer k—the maximum value of the parameter x for the reducing laser ($1 \le k \le 2 \cdot 10^{18}$).

Output

Output a single number—the minimum total area of the unused pieces.

Scoring

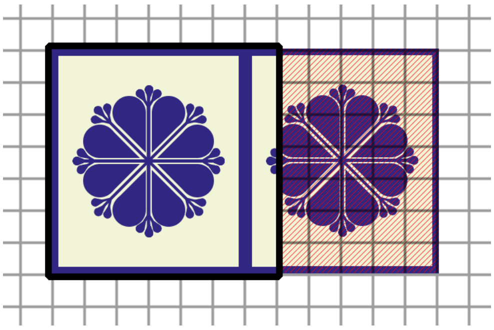
Subtask	Points	Additional Constraints	Required Groups	Comment
0	0	–	–	Tests from the statement.
1	20	$a, b, k \le 200$; b — odd	–	–
2	15	$a, b, k \le 200$	0–1	–
3	15	$a, b, k \le 2\,000$	0–2	–
4	20	$k \le 2 \cdot 10^6$	0–3	–
5	10	$k \le 2 \cdot 10^{12}$	0–4	–
6	20	—	0–5	–

Examples

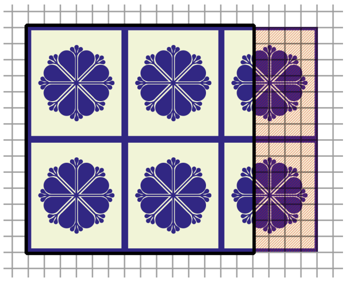
standard input	standard output
7 6 4	21
11 8 4	0

Explanation

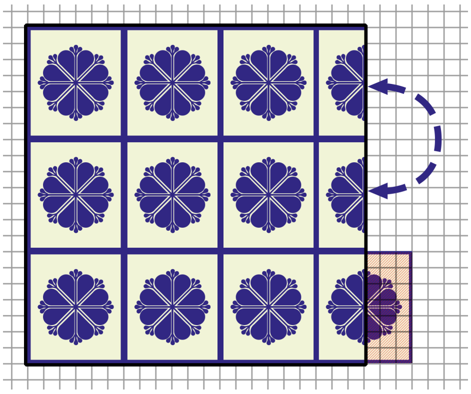
Illustration for the first example for all possible x on the next page.



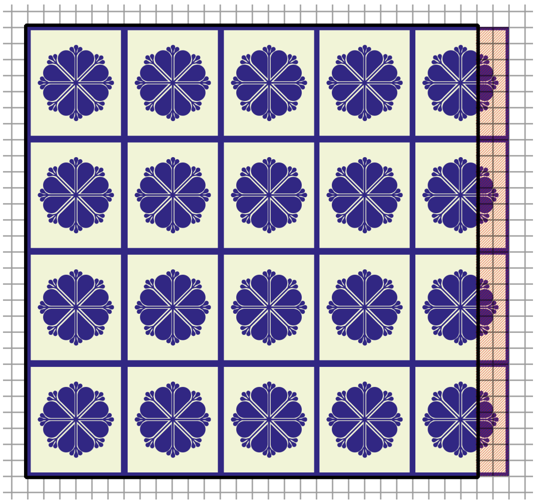
$x = 1$
The side of the small square is 1
The required area is $5 \cdot 7 = 35$



$x = 2$
The side of the small square is $\frac{1}{2}$
The required area is $4 \cdot 14 = 56$



$x = 3$
The side of the small square is $\frac{1}{3}$
The required area is $3 \cdot 7 = 21$



$x = 4$
The side of the small square is $\frac{1}{4}$
The required area is $2 \cdot 28 = 56$

Note that the size of the small square in the illustration does not affect the required total area, as the reducing laser was not applied to the unused pieces of tile.