Task: ORN
Ornithologist

Olimpiada Informatyczna

XXVI OI, Stage III, Day two. Source file `orn.*` Available memory: 8 MB. *11.04.2019*

Attention! Keep the low memory limit in mind.

Byteasar the ornithologist has come across historic records about the digipass pigeon (*Ectopistes digitorius*), a long extinct Byteotian bird. According to those, this bird species had unusual mating rituals. The ritual involved n males and m females. For ease of description, we number the males from 1 to n and the females from $n+1$ to $n+m$. All birds formed a circle ordered from 1 to $n+m$, and sang mating songs.

Digipass pigeons had two different mating songs: the song "Lovely pigeon", consisting of a sounds, and the song "Oh my doveling", consisting of b sounds. The birds sang a single sound of a song in their circular order, starting with the bird no. 1 singing the first sound of "Lovely pigeon". The bird that sang the last sound of a mate song flew away, and the remaining ones continued singing starting from the leaving bird's successor. Moreover, the next mating song to be performed was "Lovely pigeon" if the bird which left was a male and "Oh my doveling" if it was a female.

Byteasar wonders which bird was the k-th to fly away. Help him by writing a program that will print the number of the bird he is interested in.

Input

In the first and only line of the standard input, there are five positive integers n, m, a, b, and k ($k, a, b \leq n+m$), separated by single spaces, which specify the number of males and the number of females participating in the mating ritual, the number of sounds in the "Lovely pigeon" song, the number of sounds in the "Oh my doveling" song, and the number of the bird Byteasar is interested in, respectively.

Output

In the first and only line of the standard output a single integer should be printed: the number of the bird which was the k-th to fly away.

Example

For the input data:

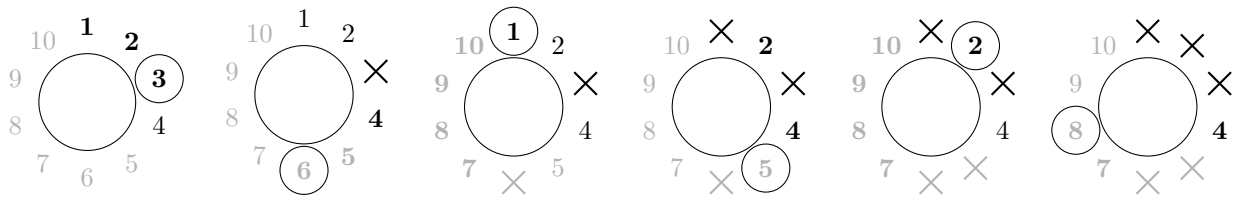
```
4 6 3 5 6
```

the correct result is:

```
8
```

Explanation for the example: There are four males and six females. The males are numbered $1, \ldots, 4$, and the females $5, \ldots, 10$. The mating song "Lovely pigeon" has three sounds, whereas "Oh my doveling" has five sounds. Byteasar wants to know which bird is the sixth to fly away.

The figure below depicts successive mate songs that are being sang. Male numbers are black, whereas female numbers gray:



The first song is finished by the bird no. 3, which is male, so the second song is "Lovely pigeon". This song is finished by the bird no. 6, which is female, so the third song is "Oh my doveling", which has five sounds. This one is finished by the bird no. 1, which is male, so the next song is "Lovely pigeon", sang by birds no. 2, 4, and 5. Note that the birds which flew away do not sing anymore.

Sample grading tests:

`1ocen:` $n = m = 10$, $a = 2$, $b = 5$, $k = 1$; answer 2;

`2ocen:` $n = 500$, $m = 400$, $a = b = 3$, $k = 500$; answer 899;

`3ocen:` $n = 100\,000$, $m = 150\,000$, $a = b = 2$, $k = 150\,001$; answer $100\,003$;

`4ocen:` $n = m = 5\,000\,000$, $a = b = 1$, $k = 10\,000\,000$; answer $10\,000\,000$.

Grading

The set of tests consists of the following subsets. Within each subset, there may be several tests. The following conditions hold in all tests: $1 \leq n, m \leq 10^9$ and $1 \leq a, b \leq 10\,000$.

Time limits for particular subsets are published in SIO.

Subset	Conditions	Score
1	$n + m \leq 1000$	12
2	$n + m \leq 250\,000$	20
3	$n + m \leq 5\,000\,000$, $k \leq 1\,000\,000$	18
4	$k \leq 3\,000\,000$	22
5	no further conditions	28