

20B Rating

Time Limit: 1.0s **Memory Limit:** 256M

Middle Earth Technical University organizes a coding competition. In this competition, people play with each other using AI programs that they write. Every pair of programmers play with each other, and winner steals K points from the loser's rating and adds it to their rating. If the loser has less than K rating, the winner steals all of their ratings.

Can you find the maximum rating after a total of M matches?

Note that all of the M matches can be done by the same competitor.

Input

First-line contains the integers N (the number of contestants), K (the number of points that the winner steals from the loser), and M (the number of total matches).

The second line contains an array of N nonnegative integers. A_i correspond to i^{th} contestant's rating.

- $1 \leq N, K \leq 10^5$
- $1 \leq A_i \leq 10^5$

Output

Print the maximum rating after M matches.

Examples

Input:

```
4 2 3
1 2 3 4
```

Output:

```
9
```

Input:

```
4 1 4  
1 1 1 4
```

Output:

```
7
```