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C - Candy Tribulation

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 350 points

Problem Statement

You have an unlimited supply of two types of candies: small candies and large candies. The weight of a small candy is X grams, and the weight of a large candy is Y grams. Large candies are heavier than small candies (that is, $X < Y$).

There are N children, numbered 1 to N .

You have decided to distribute candies so that the following conditions are satisfied:

- For $i = 1, \dots, N$, child i receives exactly A_i candies in total of the two types.
- The total weights of candies distributed to the N children are all equal.

Determine whether there exists a distribution method that satisfies the conditions. If it exists, find the maximum possible value for the number of large candies distributed.

Constraints

- $2 \leq N \leq 2 \times 10^5$
- $1 \leq A_i \leq 10^9$
- $1 \leq X < Y \leq 10^9$
- All input values are integers.

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Input

The input is given from Standard Input in the following format:

```
N X Y
A1 ... AN
```

Output

If there is no distribution method that satisfies the conditions, output -1.

If there exists a distribution method that satisfies the conditions, output the maximum possible value for the number of large candies distributed in such a distribution method.

Sample Input 1

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```
3 6 8
11 10 13
```

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Sample Output 1

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```
18
```

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You can distribute candies as follows so that the total weights of candies distributed to the children are all equal.

- Child 1 receives 4 small candies and 7 large candies. The total weight is $6 \times 4 + 8 \times 7 = 80$ grams.
- Child 2 receives 0 small candies and 10 large candies. The total weight is $6 \times 0 + 8 \times 10 = 80$ grams.
- Child 3 receives 12 small candies and 1 large candy. The total weight is $6 \times 12 + 8 \times 1 = 80$ grams.

In this distribution method, a total of 18 large candies are distributed.

There is no distribution method that satisfies the conditions and distributes more than 18 large candies. Therefore, the answer is 18.

Sample Input 2

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```
2 3 4
3 5
```

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Sample Output 2

[Copy](#)

-1

[Copy](#)

There is no distribution method that satisfies the conditions.

Sample Input 3

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8 4 32

1000000000 1000000000 1000000000 1000000000 1000000000 1000000000 1000000000 1000000000

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Sample Output 3

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8000000000

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The answer may not fit in a 32-bit integer.

[/#telegram](#))

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