# Practice Problem PC
# Stock Market

Adrian owns a stock that he previously purchased, and wants to sell that stock. Currently, at day $0$, the price of the stock is $P_0$. As a robot, Morgan can predict the future. Morgan tells Adrian that the price changes will repeat every $N$ days.

Formally, suppose that the price change from day $i$ to day $i+1$ for $0 \leq i \leq N-1$ is $D_i$. The price change from day $i$ to $i+1$ for $i \geq N$ is $D_i = D_{i \bmod N}$. The price of the stock at day $i$ for $i > 0$ is $P_i = P_{i-1} + D_{i-1}$. It is possible for a price to be negative.

Moreover, Morgan also knows that the price is on a downward trend. That is, the sum of all $D_i$ is negative.

The following table is the stock price of each day if $N = 6$, $P_0 = 20$, and $D_{0..5} = [4, -6, -1, 4, -9, -2]$.

| Day | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | ⋯ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Price | 20 | 24 | 18 | 17 | 21 | 12 | 10 | 14 | 8 | 7 | 11 | 2 | 0 | 4 | −2 | −3 | 1 | −8 | ⋯ |

Adrian can only sell the stock when the price is at least $X$, the price when he purchased the stock, to avoid any losses. As a thrill seeker, Adrian also would like to sell his stock at the lowest price possible while still being at least $X$.

Help Adrian to determine the lowest price of the stock that is not lower than $X$, or tell him if it is impossible. Note that Adrian can sell his stock at day $0$, if $P_0 \geq X$.

### Input

Input begins with three integers $N$ $P_0$ $X$ ($1 \leq N \leq 100\,000$; $1 \leq P_0, X \leq 10^9$) representing the number of days in a cycle, the price at day $0$, and the price when Adrian purchased the stock, respectively. The next line contains $N$ integers $D_i$ ($-10^9 \leq D_i \leq 10^9$) representing the price changes that repeat every $N$ days. It is guaranteed that the sum of all $D_i$ is negative.

### Output

If a price not lower than $X$ exists, output an integer in a single line representing the lowest price of the stock that is not lower than $X$. Otherwise, output -1 in a single line.

### Sample Input #1

```
6 20 5
4 -6 -1 4 -9 -2
```

### Sample Output #1

```
7
```

*Explanation for the sample input/output #1*

The table in the description represents this example. The lowest price of the stock that is not lower than $5$ is $P_9 = 7$.

**Sample Input #2**

```
6 20 1
4 -6 -1 4 -9 -2
```

**Sample Output #2**

```
1
```

*Explanation for the sample input/output #2*

The lowest price of the stock that is not lower than $1$ is $P_{16} = 1$.

**Sample Input #3**

```
1 3 4
-1
```

**Sample Output #3**

```
-1
```

*Explanation for the sample input/output #3*

The current price, $P_0$, is $3$ and for any subsequent day, the price will never go up. Thus, it is impossible for the price to reach at least $X = 4$.