Problem A. Minimizing Coins

Time limit 1000 ms
Mem limit 524288 kB

Consider a money system consisting of n coins. Each coin has a positive integer value. Your task is to produce a sum of money x using the available coins in such a way that the number of coins is minimal.

For example, if the coins are $\{1, 5, 7\}$ and the desired sum is 11, an optimal solution is $5 + 5 + 1$ which requires 3 coins.

Input

The first input line has two integers n and x: the number of coins and the desired sum of money.

The second line has n distinct integers $c_1, c_2, \ldots, c_n$: the value of each coin.

Output

Print one integer: the minimum number of coins. If it is not possible to produce the desired sum, print -1.

Constraints

- $1 \le n \le 100$
- $1 \le x \le 10^6$
- $1 \le c_i \le 10^6$

Example

Input	Output
3 11 1 5 7	3