Minimum Coins Problem

Time Limit: 1.00 s
Memory Limit: 512 MB

Problem Statement

You are given a set of n coins, each with a positive integer value. Your task is to produce a sum of money x using the available coins such that the total number of coins used is minimized.

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 line contains two integers n and x - the number of coins and the desired sum of money.
- The second line contains n distinct integers c_1, c_2, ..., c_n - the value of each coin.

Output

- Print a single integer - the minimum number of coins required to produce the sum x.
- If it is not possible to produce the sum using the given coins, print -1.

Constraints

- 1 <= n <= 100
- 1 <= x <= 1000000
- 1 <= c_i <= 1000000

Example

Input
3 11
1 5 7

Output
3

Explanation:
One optimal way to make the sum 11 is using coins 5 + 5 + 1.