Orange Juice

by Code_Addict

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ALguru is crazy about orange juice. He has K different bottles of orange juice in his storeroom, each with a different concentration of orange in it. Formally, bottle i has concentration $\frac{C_i}{1000}$ of orange in it.

One day, Alguru decided to drink orange juice with concentration $\frac{N}{1000}$, but unfortunately, he couldn't find a bottle with that concentration, and has to prepare it.

Alguru can mix integral litres of orange juice from each bottle (he may choose to not use some of the bottles) to prepare orange juice with a different concentration. If Alguru mixes *a* litres of orange juice with concentration $\frac{C_1}{1000}$ and *b* litres of orange juice with concentration $\frac{C_2}{1000}$, he gets *a+b* litres of orange juice with concentration $\frac{a*C_1+b*C_2}{(a+b)*1000}$.

Alguru also wants to minimize the volume the juice that he prepares. Help him find the minimum number of litres required to prepare the orange juice with concentration $\frac{N}{1000}$.

Input Format

The first line contains two integers N and K. The second line contains K integers, the i_{th} integer representing the concentration C_i.

Note : Some bottles might contain the same concentration

Constraints

- 0 <= N <= 1000
- 0 <= K <= 1000000

Output Format

Print the minimum number of liters of orange juice Alguru needs to prepare orange juice of concenration $\frac{N}{1000}$ or -1 if it is not possible.

Sample Input 0

```
400 4
100 300 450 500
```

Sample Output 0

```
2
```

Explanation 0

Alguru can mix 1 litre of orange juice with concentration 500, and 1 litre of orange juice with concentration 300. The resulting concentration would be $\frac{1*300+1*500}{(1+1)*1000} = \frac{400}{1000}$

Sample Input 1

```
50 2
30 25
```

Sample Output 1

```
-1
```

Explanation 1

No combination of the above orange juices can be used to get the required concentration.

Contest ends in 7 hours

Submissions: 8
Max Score: 30

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Current Buffer (saved locally, editable) C++14

```cpp
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;


int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code