Problem G. Same

Time limit 1000 ms
Mem limit 262144 kB

This problem is a simplified version of D2, but it has significant differences, so read the whole statement.

Polycarp has an array of n (n is even) integers $a_1, a_2, \ldots, a_n$. Polycarp conceived of a positive integer k. After that, Polycarp began performing the following operations on the array: take an index i ($1 \le i \le n$) and reduce the number a_i by k.

After Polycarp performed some (possibly zero) number of such operations, it turned out that **all** numbers in the array became the same. Find the maximum k at which such a situation is possible, or print -1 if such a number can be arbitrarily large.

Input

The first line contains one integer t ($1 \le t \le 10$) — the number of test cases. Then t test cases follow.

Each test case consists of two lines. The first line contains an even integer n ($4 \le n \le 40$) (n is even). The second line contains n integers $a_1, a_2, \ldots a_n$ ($-10^6 \le a_i \le 10^6$).

It is guaranteed that the sum of all n specified in the given test cases does not exceed 100.

Output

For each test case output on a separate line an integer k ($k \ge 1$) — the maximum possible number that Polycarp used in operations on the array, or -1, if such a number can be arbitrarily large.

Sample 1

Input	Output
3 6 1 5 3 1 1 5 8 -1 0 1 -1 0 1 -1 0 4 100 -1000 -1000 -1000	2 1 1100