Covering with intervals   X11795_en

Given a natural k and several numbers $x_1, \ldots, x_n$, we want to find the smallest possible set of closed intervals of length k that cover those numbers. In other words, we must find a set of intervals $\{[y_1, y_1 + k], \ldots, [y_m, y_m + k]\}$ such that

- for every x_i, there exists some j such that $x_i \in [y_j, y_j + k]$;

- m is minimum.

For instance, if $k = 10$ and the x_i's are $14, 19, 23$ and 27, a possible solution is $\{[12, 22], [1.8, 2.8]\}$, since every x_i belongs to (at least) one of the two intervals, and it is not possible to cover the four numbers with a single interval.

Input

Input consists of several cases, each of which starts with k, followed by n, followed by n different numbers. All numbers in the input are integers. Assume $1 \le k, n \le 10^5$.

Output

For every case, print the minimum number of closed intervals of length k that cover the given numbers.

Sample input

```
10   4   14 19 23 27
100  6   175 350 50 300 150 20
10   2   -25 -35
```

Sample output

```
2
3
1
```

Problem information

Author :
Translator : Enric Rodriguez
Generation : 2022-11-14 11:22:31