

## C. Adding Powers

time limit per test: 2 seconds

memory limit per test: 256 megabytes

Suppose you are performing the following algorithm. There is an array  $v_1, v_2, \dots, v_n$  filled with zeroes at start. The following operation is applied to the array several times — at  $i$ -th step ( $0$ -indexed) you can:

- either choose position  $pos$  ( $1 \leq pos \leq n$ ) and increase  $v_{pos}$  by  $k^i$ ;
- or not choose any position and skip this step.

You can choose how the algorithm would behave on each step and when to stop it. The question is: can you make array  $v$  equal to the given array  $a$  ( $v_j = a_j$  for each  $j$ ) after some step?

### Input

The first line contains one integer  $T$  ( $1 \leq T \leq 1000$ ) — the number of test cases. Next  $2T$  lines contain test cases — two lines per test case.

The first line of each test case contains two integers  $n$  and  $k$  ( $1 \leq n \leq 30$ ,  $2 \leq k \leq 100$ ) — the size of arrays  $v$  and  $a$  and value  $k$  used in the algorithm.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $0 \leq a_i \leq 10^{16}$ ) — the array you'd like to achieve.

### Output

For each test case print YES (case insensitive) if you can achieve the array  $a$  after some step or NO (case insensitive) otherwise.

### Example

#### input

```
5
4 100
0 0 0 0
1 2
1
3 4
1 4 1
3 2
0 1 3
3 9
0 59049 810
```

#### output

```
YES
YES
NO
NO
YES
```

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### Note

In the first test case, you can stop the algorithm before the 0-th step, or don't choose any position several times and stop the algorithm.

In the second test case, you can add  $k^0$  to  $v_1$  and stop the algorithm.

In the third test case, you can't make two 1 in the array  $v$ .

In the fifth test case, you can skip  $9^0$  and  $9^1$ , then add  $9^2$  and  $9^3$  to  $v_3$ , skip  $9^4$  and finally, add  $9^5$  to  $v_2$ .

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