



## E. XOR Guessing

time limit per test: 1 second  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

**This is an interactive problem. Remember to flush your output while communicating with the testing program.** You may use `fflush(stdout)` in C++, `system.out.flush()` in Java, `stdout.flush()` in Python or `flush(output)` in Pascal to flush the output. If you use some other programming language, consult its documentation. You may also refer to the guide on interactive problems: <https://codeforces.com/blog/entry/45307>.

The jury picked an integer  $x$  not less than 0 and not greater than  $2^{14} - 1$ . You have to guess this integer.

To do so, you may ask no more than 2 queries. Each query should consist of 100 integer numbers  $a_1, a_2, \dots, a_{100}$  (each integer should be not less than 0 and not greater than  $2^{14} - 1$ ). In response to your query, the jury will pick one integer  $i$  ( $1 \leq i \leq 100$ ) and tell you the value of  $a_i \oplus x$  (the bitwise XOR of  $a_i$  and  $x$ ). There is an additional constraint on the queries: all 200 integers you use in the queries should be distinct.

It is guaranteed that the value of  $x$  is fixed beforehand in each test, but the choice of  $i$  in every query may depend on the integers you send.

### Output

To give the answer, your program should print one line !  $x$  with a line break in the end. After that, it should flush the output and terminate gracefully.

### Interaction

Before giving the answer, you may submit no more than 2 queries. To ask a query, print one line in the following format: ?  $a_1 a_2 \dots a_{100}$ , where every  $a_j$  should be an integer from the range  $[0, 2^{14} - 1]$ . The line should be ended with a line break character. After submitting a query, flush the output and read the answer to your query — the value of  $a_i \oplus x$  for some  $i \in [1, 100]$ . **No integer can be used in queries more than once.**

If you submit an incorrect query (or ask more than 2 queries), the answer to it will be one integer  $-1$ . After receiving such an answer, your program should terminate immediately — otherwise you may receive verdict "Runtime error", "Time limit exceeded" or some other verdict instead of "Wrong answer".

### Example

input	Copy
0 32	
output	Copy
? 3 5 6 ? 32 24 37 ! 5	

### Note

The example of interaction is **not correct** — you should submit **exactly** 100 integers in each query. Everything else is correct.

Hacks are forbidden in this problem.

### Educational Codeforces Round 71 (Rated for Div. 2)

Finished

Practice



### → Virtual participation

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Start virtual contest

### → Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

### → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

### → Submit?

Language: GNU G++11 5.1.0

Choose file:  未选择任何文件

### → Problem tags

[bitmasks](#)
[interactive](#)
[math](#)
[\\*1800](#)

No tag edit access

### → Contest materials

- Announcement #1 (en)
- Announcement #2 (ru)
- Tutorial #1 (en)
- Tutorial #2 (en)
- Tutorial #3 (ru)

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