

A. Two Bases

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

After seeing the "ALL YOUR BASE ARE BELONG TO US" meme for the first time, numbers X and Y realised that they have different bases, which complicated their relations.

You're given a number X represented in base b_x and a number Y represented in base b_y . Compare those two numbers.

Input

The first line of the input contains two space-separated integers n and b_x ($1 \leq n \leq 10$, $2 \leq b_x \leq 40$), where n is the number of digits in the b_x -based representation of X .

The second line contains n space-separated integers x_1, x_2, \dots, x_n ($0 \leq x_i < b_x$) — the digits of X . They are given in the order from the most significant digit to the least significant one.

The following two lines describe Y in the same way: the third line contains two space-separated integers m and b_y ($1 \leq m \leq 10$, $2 \leq b_y \leq 40$, $b_x \neq b_y$), where m is the number of digits in the b_y -based representation of Y , and the fourth line contains m space-separated integers y_1, y_2, \dots, y_m ($0 \leq y_i < b_y$) — the digits of Y .

There will be no leading zeroes. Both X and Y will be positive. All digits of both numbers are given in the standard decimal numeral system.

Output

Output a single character (quotes for clarity):

- '<' if $X < Y$
- '>' if $X > Y$
- '=' if $X = Y$

Examples

input
6 2 1 0 1 1 1 1 2 10 4 7
output
=
input
3 3 1 0 2 2 5 2 4
output
<
input
7 16 1 5 1 5 4 0 0 7 10 7 9 4 8 0 3 1 5 0
output

Codeforces Round #333 (Div. 2)

Finished

→ Virtual participation

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Start virtual contest

→ Problem tags

implementation

No tag edit access

→ Contest materials

- Tutorial

>

Note

In the first sample, $X = 101111_2 = 47_{10} = Y$.

In the second sample, $X = 102_3 = 21_5$ and $Y = 24_5 = 112_3$, thus $X < Y$.

In the third sample, and $Y = 4803150_9$. We may notice that X starts with much larger digits and b_x is much larger than b_y , so X is clearly larger than Y .