After graduating from the University of Notre Dame, you obtained a job at Top Shelf Software, Inc., as an entry-level computer engineer. On the first day, your manager sits down with you and tasks you with the following job: "We want to see how well you understand computer programming and the abstract science behind it. As an evaluation for all of our new hires, we require them to write a program to determine the relationship between pairs of sets. I'm quite sure that you'll do well; my confidence is high. Here's a list of requirements for what the program should do. Good luck."

Input

Your program should accept an even number of lines of text. Each pair of lines will represent two sets; the first line represents set A, the second line represents set B. Each line of text (set) will be a list of distinct integers.

Output

After each pair of lines has been read in, the sets should be compared and one of the following responses should be output:

- `A is a proper subset of B`

- `B is a proper subset of A`

- `A equals B`

- `A and B are disjoint`

- `I'm confused!`

Sample Input

```
55 27
55 27
9 24 1995
9 24
1 2 3
1 2 3 4
1 2 3
4 5 6
1 2
2 3
```

Sample Output

```
A equals B
B is a proper subset of A
A is a proper subset of B
A and B are disjoint
I'm confused!
```