Problem B. Patterns Overlap

Kickstart Round A 2017

A. Square Counting

B. Patterns Overlap

C. Space Cubes

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Small input 13 points	Solve B-small
Large input 22 points	Solve B-large

Problem

Alice likes reading and buys a lot of books. She stores her books in two boxes; each box is labeled with a pattern that matches the titles of all of the books stored in that box. A pattern consists of only uppercase/lowercase English alphabet letters and stars (`*`). A star can match between zero and four letters. For example, books with the titles `GoneGirl` and `GoneTomorrow` can be put in a box with the pattern `Gone**`, but books with the titles `TheGoneGirl`, and `GoneWithTheWind` cannot.

Alice is wondering whether there is any book that could be stored in either of the boxes. That is, she wonders if there is a title that matches both boxes' patterns.

Input

The first line of the input gives the number of test cases, **T**. **T** test cases follow. Each consists of two lines; each line has one string in which each character is either an uppercase/lowercase English letter or `*`.

Output

For each test case, output one line containing `Case #x: y`, where `x` is the test case number (starting from 1) and `y` is `TRUE` if there is a string that matches both patterns, or `FALSE` if not.

Limits

1 ≤ **T** ≤ 50.

Small dataset

1 ≤ the length of each pattern ≤ 200.
Each pattern contains at most 5 stars.

Large dataset

1 ≤ the length of each pattern ≤ 2000.

Sample

Input	Output
3 **** It Shakes*e S*speare Shakes*e *peare	Case #1: TRUE Case #2: TRUE Case #3: FALSE

In sample case #1, the title `It` matches both patterns. Note that it is possible for a `*` to match zero characters.

In sample case #2, the title `Shakespeare` matches both patterns.

In sample case #3, there is no title that matches both patterns. `Shakespeare`, for example, does not work because the `*` at the start of the `*peare` pattern cannot match six letters.
