

# Subset or Element

Given two sets A and B decide which of the following cases is satisfied.

1. A is an element and a subset of B;
2. A is an element but not a subset of B;
3. A is a subset but not an element of B;
4. A is neither an element nor a subset of B.

Sets are given by the sequence of commas, curly brackets, and E (denoting the empty set) symbols. Length of the set description does not exceed 100000 characters.

## Input

First  $t$ , the number of test cases. In the following  $2t$  lines description of set pairs, each set in the separate line in the same format as presented in the examples below.

## Output

For each pair of sets output one number corresponding to the case described above.

### Example 1

**Input:**

```
2
A = {E}
B = {{E}}
A = {E}
B = {{{E}}}
```

**Output:**

```
2
4
```

**Comment:** In the above examples A is a set containing one element: an empty set. In the first example A is an element of B, which is a set containing one element: a set containing one element: an empty set. In the second example B is also a set containing one element, but its element is not the A set but, a set containing A as an element.

### Example 2

**Input:**

```
5
A = {E}
B = {E,{{E}}}
A = {E}
B = {E,{E}}
A = {{{E}}}
B = {{E,E},{E,{E}},{E}}
A = {{E,{E}}}
B = {{E,E},{E,{E}},{E}}
A = {E}
```

$B = \{\{E\}, E\}$

**Output:**

3  
1  
4  
3  
1

### Example 3

**Input:**

1

$A = \{\{E\}, E, E, E\}$

$B = \{\{E, E\}, E, E, E, E, E, \{\{E, \{\{E, \{E\}, \{E, E\}, \{\{E, \{\{E, E\}, E\}\}\}\}\}\}\}$

**Output:**

3

**Comment:** Please note, that an element of a set might be listed multiple times, what does not mean, that the set contains more than one copy of that element.

### Scoring

For solving this problem you will score 10 points.