COCI '20 Contest 4 #2 Vepar

Time limit: 1.5s **Memory limit:** 512M

Two intervals of positive integers $\{a, a+1, \ldots, b\}$ and $\{c, c+1, \ldots, d\}$ are given. Determine whether the product $c \times (c+1) \times \cdots \times d$ is divisible by the product $a \times (a+1) \times \cdots \times b$.

Input Specification

The first line contains a single integer t $(1 \leq t \leq 10)$, the number of independent test cases.

Each of the following t lines contains four positive integers a_i, b_i, c_i, d_i $(1 \leq a_i \leq b_i \leq 10^7, 1 \leq c_i \leq d_i \leq 10^7)$.

Output Specification

Output t lines in total. For the i^{th} test case, output `DA` if $a \times (a+1) \times \cdots \times b$ divides $c \times (c+1) \times \cdots \times d$, and output `NE` otherwise.

Sample Input 1

```
2
9 10 3 6
2 5 7 9
```

Sample Output 1

```
DA
NE
```

Sample Explanation 1

We have $9 \cdot 10 = 90$ and $3 \cdot 4 \cdot 5 \cdot 6 = 360$. The answer is `DA` because 90 divides 360.

We calculate $2 \cdot 3 \cdot 4 \cdot 5 = 120$, which doesn't divide $7 \cdot 8 \cdot 9 = 504$. Thus the second answer is `NE`.

Sample Input 2

```
6
1 2 3 4
1 4 2 3
2 3 1 4
1 3 2 4
19 22 55 57
55 57 19 22
```

Sample Output 2

```
DA
NE
DA
DA
DA
DA
```