Testing Round #16 (Unrated)

A. A+B (Trial Problem)

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given two integers a and b. Print $a + b$.

Input

The first line contains an integer t ($1 \le t \le 10^4$) — the number of test cases in the input. Then t test cases follow.

Each test case is given as a line of two integers a and b ($-1000 \le a, b \le 1000$).

Output

Print t integers — the required numbers $a + b$.

Example

input
4 1 5 314 15 -99 99 123 987
output
6 329 0 1110

B. Square?

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Vasya claims that he had a paper square. He cut it into two rectangular parts using one vertical or horizontal cut. Then Vasya informed you the dimensions of these two rectangular parts. You need to check whether Vasya originally had a square. In other words, check if it is possible to make a square using two given rectangles.

Input

The first line contains an integer t ($1 \le t \le 10^4$) — the number of test cases in the input. Then t test cases follow.

Each test case is given in two lines.

The first line contains two integers a_1 and b_1 ($1 \le a_1, b_1 \le 100$) — the dimensions of the first one obtained after cutting rectangle. The sizes are given in random order (that is, it is not known which of the numbers is the width, and which of the numbers is the length).

The second line contains two integers a_2 and b_2 ($1 \le a_2, b_2 \le 100$) — the dimensions of the second obtained after cutting rectangle. The sizes are given in random order (that is, it is not known which of the numbers is the width, and which of the numbers is the length).

Output

Print t answers, each of which is a string "YES" (in the case of a positive answer) or "NO" (in the case of a negative answer). The letters in words can be printed in any case (upper or lower).

Example

input
3 2 3 3 1 3 2 1 3 3 3 1 3
output

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Yes
Yes
No
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C. Skier

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Skier rides on a snowy field. Its movements can be described by a string of characters 'S', 'N', 'W', 'E' (which correspond to 1 meter movement in the south, north, west or east direction respectively).

It is known that if he moves along a previously unvisited segment of a path (i.e. this segment of the path is visited the first time), then the time of such movement is 5 seconds. If he rolls along previously visited segment of a path (i.e., this segment of the path has been covered by his path before), then it takes 1 second.

Find the skier's time to roll all the path.

Input

The first line contains an integer t ($1 \le t \le 10^4$) — the number of test cases in the input. Then t test cases follow.

Each set is given by one nonempty string of the characters 'S', 'N', 'W', 'E'. The length of the string does not exceed 10^5 characters.

The sum of the lengths of t given lines over all test cases in the input does not exceed 10^5.

Output

For each test case, print the desired path time in seconds.

Example

input
5 NNN NS WWEN WWEE NWNWS
output
15 6 16 12 25