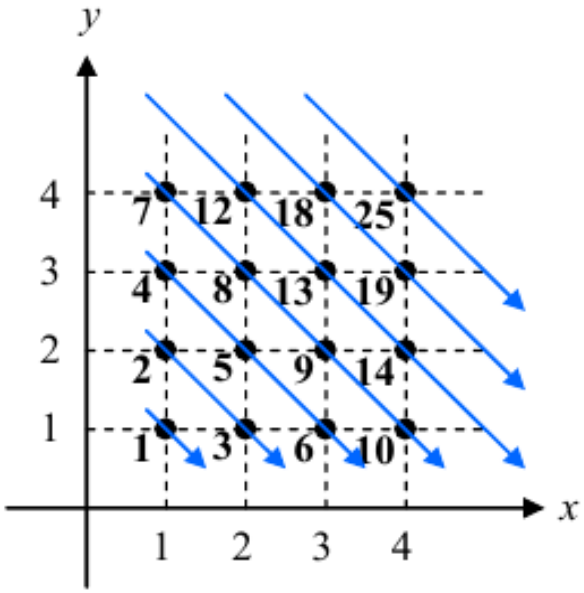
6113 Dot Number

You are given an infinite number of dots in the first quadrant of two-dimensional Cartesian plane. The and coordinates of each dot are positive integers. You are going to count the dots by assigning a natural number to every dot in the diagonal order as in the figure.



The unique number assigned to each dot is called the *dot number*.

The dot number of (x, y) is denoted as $\#(x, y)$. For example, the figure shows the dot numbers for some dots, $\#(1, 1) = 1, \#(2, 1) = 3, \#(2, 2) = 5$, and $\#(4, 4) = 25$, etc.

The addition of dots is defined by those of corresponding coordinates, i.e. $(a, b)+(c, d) = (a+c, b+d)$. Since the dot number determines the actual coordinates of the dot, the addition of two dots can also be denoted by that of two dot numbers. For example, the addition of the dots $(1, 1)$ and $(2, 2)$ can be denoted by 1+5 since $\#(1, 1) = 1$, $\#(2, 2) = 5$, and the addition result is 13 since $\#(3, 3) = 13$.

You are to write a program which adds two dots represented by their dot numbers. Your program should decipher the dot numbers, add the dots, and print the dot number of the resulting dot.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case consists in one line containing two dot numbers separated by a space. The dot numbers are greater than 0 and less than 10,000.

Output

Your program is to write to standard output. Print exactly one line for each test case. The line should contain an integer, the dot number of the result of the dot addition. Beware that the resulting dot number may greater than or equal to 10,000.

The following shows sample input and output for two test cases.

Sample Input

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2
1 5
3 9
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Sample Output

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13
26
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