Problem K
Tractor

Problem ID: tractor
CPU Time limit: 1 second
Memory limit: 1024 MB

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Qualifier

Bessie the Cow has stolen Farmer John's tractor and is running wild on the coordinate plane! She, however, is a terrible driver, and can only move according to the following rules:

1. Each of her movements is in the same direction as either the positive x-axis or the positive y-axis.
2. Her nth movement takes her 2^{n-1} units forward in her chosen direction. (On her first movement, $n = 1$, so she moves 1 unit.)

Farmer John's farm is on the coordinate plane, in the shape of a rectangle with corners at $(0, 0)$, $(A, 0)$, $(0, B)$ and (A, B). If Bessie starts at $(0, 0)$, how many points inside the farm, including the boundary, could she reach?

Input

The input begins with an integer N ($1 \leq N \leq 100$) on a line by itself, indicating the number of test cases that follow. Each of the following N lines contains two space separated integers A and B ($1 \leq A, B \leq 10^8$), describing the upper-right corner of Farmer John's farm.

Output

Output N lines, with the Nth line containing the number of points that Bessie could possibly reach in the Nth test case.

In the first test case of the sample, Bessie can reach the following six points: $(0, 0)$, $(0, 1)$, $(1, 0)$, $(1, 2)$, $(2, 1)$ and $(0, 3)$.

Sample Input 1

```
2
2 3
7 7
```

Sample Output 1

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6
15
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