

Playing With Balls

There are W white balls and B black balls in a bag. A magician is performing tricks by drawing balls from the bag.

In each step, the magician randomly removes any two balls from the bag. If the drawn balls are of the same color, he will put one white ball in the bag, otherwise he will put a black ball in it. The two drawn balls from the bag from the ball are discarded.

He keeps on doing the above tricks until there is only one ball remaining in the bag.

Given W and B , you have to determine the probability that the color of last ball remaining in the bag is black. You should print the answer with accuracy of up to 6 decimal digits.

Input

T : number of test cases ($1 \leq T \leq 10^4$)

For every test case W and B are given ($0 \leq W \leq 10^8$ and $0 \leq B \leq 10^8$ and $W + B \neq 0$)

Output

For each test case, output the probability as stated in the problem statement.

Example

Input:

```
2
1 1
1 2
```

Output:

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1.000000
0.000000
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