OVEEB

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

As we all know, *Beevo* hates his evil twin *Oveeb*. But what we didn't know is that the feeling is mutual.

One day, *Beevo* wanted to go to bed early, as he loves nothing more than a good night's sleep. Knowing this, *Oveeb* — being the evil rascal that he is — decided to give him a hard problem to keep him up all night thinking about it. The problem goes as follows:

Beevo chooses a cell at random from an n x m grid. Let's define a value $Reach(i, j)$ for the cell in row i from the top and column j from the left as the numbers of cells that can be reached from this cell by one vertical or horizontal jump of length k. Find the probability that the cell chosen by *Beevo* has the maximum *Reach* value among all cells of the grid.

Help *Beevo* solve this problem and wake up the next morning at dawn feeling rested.

Input

The first line of input contains an integer t ($1 \leq t \leq 10^5$) — the number of test cases.

The next line contains three integers n, m and k ($1 \leq n, m, k \leq 10^9$) — the dimensions of the grid and the length of the jump.

Output

For each test case, print a real number — the required probability. Your answer will be considered correct if its absolute or relative error does not exceed 10^{-9}.

Formally, let your answer be a, and the jury's answer be b. Your answer is accepted if $\frac{|a-b|}{\max(1,|b|)} \leq 10^{-9}$.

Important Note: Please print exactly 9 digits after the decimal point.

Example

standard input	standard output
2 3 3 2 1 1 1000000000	0.444444444 1.000000000

Note

A horizontal jump of length 3 to the right from the cell (1, 1) will result in landing in the cell (1, 4).

In the **first** test case: The 4 corner cells have a *Reach* value of 2, higher than all other cells. So, the probability = 4/9.