

There is a very big rectangular (yes...) cake on the  $xy$ -plane, whose four corners are  $(0, 0)$ ,  $(w, 0)$ ,  $(w, h)$  and  $(0, h)$ .

Each time you're hungry, you slice a piece from the cake and eat it. Your task is to output the area of the remaining cake, after each slice.

## Input

There are several test cases. The first line contains three integers  $n$ ,  $w$ ,  $h$  ( $1 \leq n \leq 200,000$ ,  $1 \leq w, h \leq 1000$ ), the number of slices, the width and the height of the cake. Each of the following  $n$  lines contains four positive real numbers  $x_1$ ,  $y_1$ ,  $x_2$ ,  $y_2$  not greater than 1000. That means, you slice it along the straight line connecting  $(x_1, y_1)$  and  $(x_2, y_2)$ , and eat the part on the right (if any), when looking from  $(x_1, y_1)$  to  $(x_2, y_2)$ . The input is terminated by end-of-file (EOF).

## Output

For each slice, output the area of the cake after the slice, to at least three digits after the decimal point. We allow an absolute error of  $10^{-3}$  for each value you output.

## Sample Input

```
2 20 10
15.0 0.0 15.0 5.0
1.0 2.0 2.0 2.0
```

## Sample Output

```
150.000
120.000
```