

## 6638 Drunk

Jenny is seriously drunk. He feels as if he is in an  $N$ -dimension Euclidean space, wandering aimlessly. In each step, he walks toward some direction and the 'length' of each step will not exceed  $R$ . Technically speaking, Jenny is initially located at the origin of the  $N$ -dimension Euclidean space. Each step can be represented by a random  $N$ -dimension vector  $(x_1, x_2, \dots, x_n)$  chosen uniformly from possible positions satisfying  $x_i \geq 0$  and  $x_1^2 + x_2^2 + \dots \leq R^2$ .

Assume the expectation of his coordinate after his first step is  $(y_1, y_2, \dots, y_n)$ . He wants to know the minimum  $y_i$ .

### Input

There are several (about 10000) test cases, please process till EOF.

Each test case, only one line contains two integers  $N$  and  $R$ , representing the dimension of the space and the length limit of each step ( $1 \leq N \leq 2 \times 10^5$ ,  $R \leq 10^5$ ).

### Output

For each test case, print a real number representing the answer to the question above.

Your answer is considered correct if the difference between your answer and the correct one is less than  $10^{-6}$ .

### Sample Input

```
2 1
```

### Sample Output

```
0.4244131816
```