Drawing Polygrams

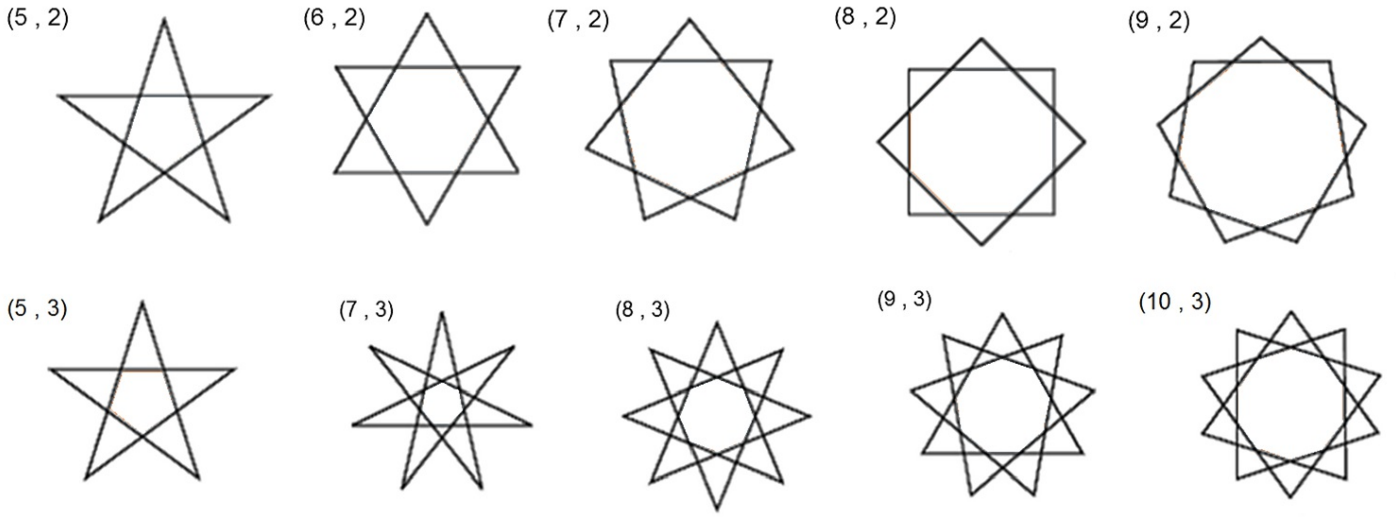
Drawing stars on the last page of a notebook is a very entertaining hobby. Did you know these cute "stars" are actually called polygrams?

Given a regular polygon with **p** vertices, we define a *polygram* **p**/**q**, as the resultant polygon obtained after connecting every i-th vertex with the (i+q)-th vertex.

You may know the polygram 5/2 as *pentagram*

Another example is the *hexagram* 6/2. Given that 6 and 2 are not coprime, this polygram is composed by two 3/1 polygrams

star polygons



Given a regular polygon with p vertices, its radius R (the distance from its center to any vertex) and a number q, can you calculate the area of the polygram p/q?

It is guaranteed that the resultant polygon will not be degenerated, i.e $q \neq p/2$ and $q \neq p$

Input

The first and only line of the input contains three integers **p**, **q** and **r**

Output

Print in a single line the area of the resultant polygram p/q with radius r. Print the answer with exactly five decimal places

Example

Input:
5 4 2

Output:
9.51057

Input:
10 4 5

Output:
40.61496

Constraints

$3 \leq p \leq 10^3$
$1 \leq q < p$
$1 \leq r \leq 100$
$q \neq p/2$ and $q \neq p$