A Math Contest P4 - Circle Cutting

Time limit: 2.0s **Memory limit:** 256M

Consider the unit circle, the circle with radius 1 centred at $(0, 0)$. You will place $N - 1$ horizontal lines such that the circle is cut into N regions with equal areas.

Find the equations of all of the lines.

Constraints

$2 \leq N \leq 2 \times 10^5$

Input Specification

The only line contains an integer, N.

Output Specification

Output $N - 1$ lines. The ith line should contain a floating-point number c_i such that the ith horizontal line has the equation $y = c_i$. These numbers should be output in increasing order.

Your answer will be accepted if each value is within an absolute error of 10^{-9}.

Sample Input

```
3
```

Sample Output

```
-0.264932084
0.264932084
```