Largest Square in a Circle

Farmer john has a circular field in which he plants cotton crops.He noticed that, the crops that are planted in a square area yielded good quality crops compared to others.So farmer john decides to plant crops only in a square fashion so as to attain maximum profit. Help john in determining the maximum area in which he can plant and harvest good quality crops.

Input

The first line contains t (Number of testcases < 1000) and t testcases follow each specifying the diameter d of the circular field where d < 10^6.

Output

Maximum plantable area.

Example

Input:
3
7
12
29

Output:
24.50
72.00
420.50