Problem B
Milk Can

Time Limit: 1 seconds
Memory Limit: 256 Megabytes

Problem description

A big food company produces canned milk. The can is a round cylinder. They produce various sizes of milk cans. When producing milk cans, the designers of this company always aim to have the lowest cost of raw materials for making cans. That means the total surface area of the can is the smallest. But they expect the volume of the milk can to remain constant, equal to V ml.

You are the talented designers here. Calculate the optimal total surface area of the can for your company to spend the least money.

Notes:

- The volume of cylinder = π*r^2*h cubic units.
- Surface area of cylinder = 2*π*r^2 + 2*π*r*h.

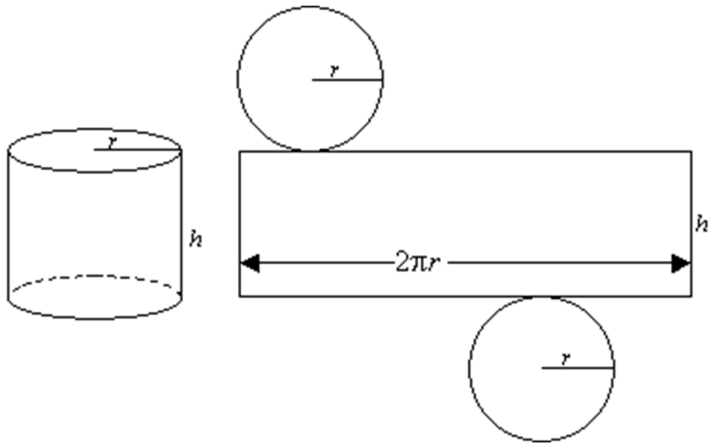

Figure 1.A milk can size specification

Input

The input consists of several test cases. The first line of the input contains the number of test cases T (T ⩽ 1000). The following lines describe the test cases.

Each test case consists of a positive integer V (V ⩽ 1000).

Output

For each test case in the input, print in a single line the smallest surface area with absolute or relative error less than 10−6 that you can achieve.

Example:

Input
3 325 500 1000
Output
261.679751 348.734205 553.581045