

## Problem D. Money Game

Input file:            **standard input**  
Output file:          **standard output**  
Time limit:           **1 second**  
Memory limit:        **1024 megabytes**

Putata and Budada are organizing a game with  $n$  players. Each player has some deposit, which is a real number. Player  $i$  has  $a_i$  deposits in the beginning. During each round of the game, the followings happen **in order**:

- Player 1 gives player 2 half of player 1's deposit.
- Player 2 gives player 3 half of player 2's deposit.
- ...
- Player  $n - 1$  gives player  $n$  half of player  $n - 1$ 's deposit.
- Player  $n$  gives player 1 half of player  $n$ 's deposit.

The  $n$  players played this game for exactly  $2022^{1204}$  rounds. Putata wonders how much deposit each player has after the game. Please write a program to answer his question.

### Input

The first line contains an integer  $n$  ( $2 \leq n \leq 10^5$ ), denoting the number of players.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^6$ ), denoting the deposit player  $i$  has in the beginning.

### Output

Output one line with  $n$  real numbers, denoting the deposit each player has after they played this game.

Your answer will be considered correct if its absolute or relative error does not exceed  $10^{-6}$ . Formally, let your answer be  $a$ , and the jury's answer be  $b$ . Your answer will be considered correct if  $\frac{|a-b|}{\max(1, |b|)} \leq 10^{-6}$ .

### Example

standard input	standard output
2 4 2	4.00 2.00

### Note

During one round, the deposit they have changed as follows:  $[4, 2] \rightarrow [2, 4] \rightarrow [4, 2]$ . Their deposit does not change after this round, so the answer is the same as the input.