Problem B. Bus stop

Input file:	`standard input`
Output file:	`standard output`
Time limit:	4 seconds
Memory limit:	256 megabytes

Your bus stop belongs to n different bus routes. Every route has interval t_i — time in minutes between previous bus departure and next bus arrival. The time bus spends staying at the stop is negligible. Schedules of different routes are independent and aren't known to you. All routes suit you. How long in average will you wait for a bus if you come to the stop in a random moment of time?

In other words, you need to calculate the expected value of minimum of n independent uniformly distributed on $[0; t_i]$ variables.

Input

The first line contains one integer n ($1 \le n \le 10^5$) — the number of bus routes.

The second line contains n integers $t_1, t_2, \ldots, t_n$ ($1 \le t_i \le 10^9$) — intervals in minutes for each bus route.

Output

Print one real number — the expectation of time, in minutes, after which comes the first bus.

Your answer will be considered correct if its absolute or relative error will not exceed 10^{-8}.

Examples

standard input	standard output
2 10 20	4.166666666667
5 10 10 20 20 30	2.402777777778