

Problem A. Archer

Time limit 2000 ms

Mem limit 262144 kB

Input file `stdin`

Output file `stdout`

SmallR is an archer. SmallR is taking a match of archer with Zanoes. They try to shoot in the target in turns, and SmallR shoots first. The probability of shooting the target each time is $\frac{a}{b}$ for SmallR while $\frac{c}{d}$ for Zanoes. The one who shoots in the target first should be the winner.

Output the probability that SmallR will win the match.

Input

A single line contains four integers a, b, c, d ($1 \leq a, b, c, d \leq 1000, 0 < \frac{a}{b} < 1, 0 < \frac{c}{d} < 1$).

Output

Print a single real number, the probability that SmallR will win the match.

The answer will be considered correct if the absolute or relative error doesn't exceed 10^{-6} .

Examples

Input	Output
1 2 1 2	0.666666666667