Timaeus

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Timaeus, a budding alchemist in Mondstadt, has been tasked by his mentor, Albedo, to synthesize a specific type of alchemical product: Large Sweet Flowers. However, due to his limited skills, Timaeus can only create one Large Sweet Flower by combining B Regular Sweet Flowers in a single synthesis. Therefore, he has enlisted the assistance of two helpers: Sato and Mona.

Sato has a knack for increasing productivity, with a probability $P\%$ of producing twice the output during a single synthesis, which means to produce two Large Sweet Flowers by combining B Regular Sweet Flowers in a single synthesis. On the other hand, Mona has a knack for resource conservation, with a probability $Q\%$ of retrieving one Regular Sweet Flower during the process, which means to produce one Large Sweet Flower and simultaneously recover one Regular Sweet Flower by combining B Regular Sweet Flowers in a single synthesis. However, Timaeus can only choose one assistant for each synthesis.

Starting with a total of A Regular Sweet Flowers, Timaeus aims to maximize the expected number of Large Sweet Flowers he can produce. Therefore, he must optimally choose between assistants Sato and Mona for each synthesis. Please calculate the maximum expected number of Large Sweet Flowers he can produce.

Input

One line contains four integers A, B, P, Q ($1 \leq B \leq A \leq 10^6$, $0 \leq P, Q < 100$), representing the total number of Regular Sweet Flowers, the number of Regular Sweet Flowers needed to synthesize a Large Sweet Flower, the probability of producing double output, and the probability of retrieving a material, respectively.

Output

Output a floating-point number representing the maximum expected number of Large Sweet Flowers he can produce. Your answer will be considered correct if the absolute or relative error between the jury's answer and yours is less than or equal to 10^{-9}.

Examples

standard input	standard output
4 2 10 25	2.200000000000000
4 2 10 90	2.901000000000000