Problem G
Loot Chest

Your favorite online game has a prize system. After each match you win, there is a $P\%$ chance you will receive a prize. This value P changes over time:

- every time you lose a match, P increases by Δ_L,
- every time you win a match but fail to receive a prize, P increases by Δ_W, and
- every time you win a match and receive a prize, P is set to 0.

Whenever P is increased, it is capped at 100. That is, if P is to be increased by Δ, P increases to $\min(P + \Delta, 100)$.

The developers just revealed one of the prizes this season is a silverback gorilla suit with star-shaped sunglasses. You want it! Each prize has a $G\%$ chance of being this gorilla suit.

You start with $P = 0\%$. You have an $L\%$ chance of losing each match you play. Given Δ_L, Δ_W, G, and L, compute the expected number of matches you will have to play until you obtain the silverback gorilla suit.

For example, in the first sample case you win every match you play and are guaranteed to receive a prize every 2 matches. Each prize has a 50% chance of being the gorilla suit. So you expect to obtain the gorilla suit after receiving 2 prizes. Thus, in expectation, it takes 4 matches to obtain the gorilla suit.

Input

The input consists of a single line containing four integers Δ_L ($1 \leq \Delta_L \leq 100$), Δ_W ($1 \leq \Delta_W \leq 100$), G ($1 \leq G \leq 100$), and L ($0 \leq L \leq 99$), which are described above.

Output

Display the expected number of matches you will play before you obtain the gorilla suit. Your answer should have an absolute or relative error of at most 10^{-6}.

Sample Input 1	Sample Output 1
1 100 50 0	4

Sample Input 2	Sample Output 2
50 50 100 25	2.8333333333333333

Sample Input 3	Sample Output 3
1 100 10 0	20

Sample Input 4	Sample Output 4
2 3 10 80	197.00570671995630567

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