Flaps on a plane

Maverick is a hotshot pilot, working his way up the ranks in an airline. Lately Maverick has had difficulties getting his landings right. When landing, Maverick likes to rely on the flaps for breaking. The position of the flaps p is given as a real number between 0 and 1, where 1 means fully retracted.

In an attempt to gain more control over his landings, Maverick has come up with the following model for the speed of the aircraft.

$$v(v_0, p; t) = v_0 p^{-p} (t + p)^p e^{-t}$$

This formula describes the speed of the aircraft at time t, given the landing velocity v_0 and the flaps position p. The formula assumes that the aircraft touches down at $t = 0$. Maverick doesn't know anything about formulas, but he wants to know how far the aircraft moved up the runway at time t, given v_0 and p. The distance the aircraft has moved since touch down is described by the following formula.

$$s(v_0, p; t) = \int_0^t v(v_0, p; t)\,\mathrm{d}t$$

Help Maverick out by writing a program that calculates how far the aircraft has moved since it touched down, given v_0, t and p.

Input

Input consists of a single line containing three real, positive numbers v_0, t and p, respectively.

Output

Output the position of the plane at time t if the flaps are in position p and the landing velocity is v_0.

Note: Output must have an absolute error less than 10^{-7}. So if s_0 is correct, then all answers s such that $|s - s_0| < 10^{-7}$ will be accepted.

Constraints

$0 \le v_0, t \le 100$

$0 < p \le 1$

Sample input 1

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100 1 0.2
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Sample output 1

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77.79364224
```

Sample input 2

```
100 100 1
```

Sample output 2

```
200.00000000
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