Flaps on a plane 2

(see *Flaps on a plane* for full introduction)

It turns out Maverick isn't as good as he thinks, and needs more help finding the correct flap position. As before, Maverick is assuming that the speed of the aircraft is as described by the formula below.

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

For each airport, there is an ideal position *s* (relative to where the aircraft touched down) for the aircraft to stop. The stopping position of the plane is given by the formula below, which depends on v_0 and *p*.

$$s(v_0, p) = \int_0^\infty v(v_0, p; t) \, dt$$

Write a program that finds the correct flap position *p* so the aircraft stops in the ideal position. You can assume that such a position exists.

Input

Input consists of a single line containing two real, positive numbers v_0 and *s*.

Output

Output *p*, the position the flaps must be in for the aircraft to stop at position *s*, given v_0, the landing speed.

Note: Output must have an absolute error less than 10^{-7}. So if p_0 is correct, then all answers *p* such that $|p - p_0| < 10^{-7}$ will be accepted.

Constraints

$0 \leq v_0 \leq 100$

$v_0 \leq s \leq 2 v_0$

$0 < p \leq 1$

Sample input 1

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100 150
```

Sample output 1

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0.32532542
```

Sample input 2

```
50 70
```

Sample output 2

```
0.23039472
```