

Cyber Security Software Developer

Introduction

Cookie Clicker is a Javascript game by Orteil, where players click on a picture of a giant cookie. Clicking on the giant cookie gives them cookies which can be spent to buy buildings. Those buildings help them to get even more cookies. We can say that the game is quite cookie-focused. The task below is based on the problem introduced by this game, but it does not assume you have played Cookie Clicker. Please don't go play it now: it might take a long time before you come back.

Problem description

You start with 0 cookies and gain cookies at a rate of 2 cookies per second. Any time you have at least C cookies, you can buy a cookie farm. Every time you buy a cookie farm, it costs you C cookies and gives you an extra F cookies per second.

Once you have X cookies that you haven't spent on farms, you win! Figure out how long it will take you to win if you use the best possible strategy.

Example

Assuming $C=500.0$, $F=4.0$ and $X=2000.0$ here's how the best possible strategy plays out:

You start with 0 cookies, but producing 2 cookies per second. After 250 seconds, you will have $C=500$ cookies and can buy a farm that produces $F=4$ cookies per second. After buying the farm, you have 0 cookies, and your total cookie production is 6 cookies per second. The next farm will cost 500 cookies, which you can buy after about 83.3333333 seconds. After buying your second farm, you have 0 cookies, and your total cookie production is 10 cookies per second. Another farm will cost 500 cookies, which you can buy after 50 seconds. After buying your third farm, you have 0 cookies, and your total cookie production is 14 cookies per second. Another farm would cost 500 cookies, but it actually makes sense not to buy it: instead you can just wait until you have $X=2000$ cookies, which takes about 142.8571429 seconds. Total time: $250 + 83.3333333 + 50 + 142.8571429 = 526.1904762$ seconds. Note that you get cookies continuously therefore 0.1 seconds after the game starts you'll have 0.2 cookies, and π seconds after the game starts you'll have 2π cookies.

Input

Each line represents a test case where you can find three tab-separated real-numbers: C, F and X in order. The meaning of these are described above in the *Problem description* section.

C, F and X will each consist of at least 1 digit followed by 1 decimal point followed by from 1 to 5 digits. There are no leading zeroes.

Output

For each test case, add a new tab separated value representing the minimum number of seconds needed for having X delicious cookies.

The values are required to have the same format as the other data fields described in the *Input* section. In case the has more than 5 digits after the decimal point just trim off the rest, do not round. Also, do not pad the value from either side. UTF-8 encoding and LF line endings are expected.

Limits

Small dataset

$1 \leq C \leq 500$; $1 \leq F \leq 4$; $1 \leq X \leq 2000$

Large dataset

$1 \leq C \leq 10000$; $1 \leq F \leq 100$; $1 \leq X \leq 100000$

Sample

Input

30.0	1.0	2.0
30.0	2.0	100.0
30.50000	3.14159	1999.19990
500.0	4.0	2000.0

Output

30.0	1.0	2.0	1.0
30.0	2.0	100.0	39.16666
30.50000	3.14159	1999.19990	63.968
500.0	4.0	2000.0	526.19047