

Mysterious Sequence

Input file: **standard input**
Output file: **standard output**
Time limit: **2 seconds**
Memory limit: **512 megabytes**

In the ancient kingdom of numbers X , a mysterious formula ruled, connecting each number with the previous ones:

$$X_{i+2} = A \cdot X_{i+1} + B \cdot X_i$$

This formula was so powerful that even the wisest magician could not decipher all the numbers in the sequence without knowing the first two numbers.

However, over time, all members of the sequence were lost except for the first and the last numbers.

Once upon a time, a wizard of the highest category was asked to find all the numbers X_i in this mysterious sequence. He embarked on a long journey, deeply contemplating incantations and mathematical formulas. With his knowledge and magic, he delved into the secrets of numbers and finally revealed all the hidden X_i contained in this mystical formula.

And what about you? Can you reconstruct all the members of the sequence knowing only the first and last numbers?

Input

The first line contains real numbers A and B ($0.25 \leq A, B \leq 1$, up to two digits after the decimal point) and integers n, X_1, X_n ($2 \leq n \leq 10, 1 \leq X_1, X_n \leq 100$).

Output

Output n lines: the numbers X_1, X_2, \dots, X_n , one per line. The answers will be considered correct if absolute or relative error is at most 10^{-6} .

Example

standard input	standard output
1.0 1.0 10 1 10	1 -0.3235294118 0.6764705882 0.3529411765 1.029411765 1.382352941 2.411764706 3.794117647 6.205882353 10