## Another Investment

In $n$ successive years Robert made $n$ investments, one per year. Now, he would like to verify how effective his investments were and to calculate the annualized rate of return for them.

## Input

The first line of input contains one integer $1<n<10$ - the number of years to be considered.
In the next $n$ lines you are given the amount (with two digits of precision) of Robert's investment in each of the consecutive years - one amount in each line.

The last line contains one number: $Y>0$ - the total value of all of Robert's investments after $n$ years, with two digits of precision.

## Output

Output the internal rate of return (IRR), assuming that annual investment period lengths were equal, as a percentage value with two digits of precision.

## Example 1

Input:
4
1000.00
1000.00
1000.00
1000.00
7000.00

Output:
23.69

## Example 2

Input:
3
3
2
2
3

## Output:

-34.63

## Scoring

By solving this problem you score 10 points.

