Swedish coins (1) P95248_en

You have a collection C of n old Swedish coins. Every coin i has a probability p_i of landing heads (and a probability $1-p_i$ of landing tails). Consider the following experiment for every subset S of C: Flip each coin in S exactly once, and count the number of heads; you win if this number is odd. Let $w(S)$ denote the winning probability of the subset S.

Given two real numbers ℓ and r, and a collection of coins C, how many subsets S of C are such that $\ell < w(S) < r$?

Input

Input consists of several cases. Every case begins with two real numbers ℓ and r, followed by n, followed by $p_1 \ldots p_n$. Assume $0 < \ell < r < 1$, $1 \leq n \leq 40$ and $0 < p_i < 1$.

Output

For every case, print the number of subsets S such that $\ell < w(S) < r$. The input cases have no precision issues.

Observation

Please take into account that the result can be larger than 10^{12}.

Sample input 1

```
0.2 0.4
1  0.3

0.4 0.5
1  0.3

0.45 0.71
2  0.7 0.6

0.49 0.51
5  0.5 0.5 0.5 0.5 0.5
```

Sample output 1

```
1
0
3
31
```

Problem information

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