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Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

While working for SOA, Mr. Nežmah somehow ended up on the Croatian version of The Bachelor! In the new season of The Bachelors, there are two bachelors, Mr. Nežmah and Mr. M, and n girls competing for their love. The girls are numbered from 1 to n .

As everyone knows, to advance to the next round, a girl has to receive a rose from either Mr. Nežmah or Mr. M. During the dates, both of them have already given out some roses, and currently, Mr. Nežmah has A roses left and Mr. M has B roses left. The girls already given roses by Mr. Nežmah are represented by a string s where the i -th character is '1' if the girl has received a rose during the dates and '0' otherwise. Roses given out by Mr. M are analogously represented by the string t .

The final ceremony is about to start, and the girls are already panicking. They know their Bachelors don't really care about the roses given out during the ceremony, so each of them will randomly distribute their roses among the girls who haven't yet received a rose from them. They will always distribute all of the roses they have left. Please help the girls calculate the expected number of them who make it through to the next round!

Input

The first line contains integers n , A , and B ($1 \leq n \leq 10^5, 0 \leq A, B \leq n$).

The second line contains s , a string of length n containing only the characters '0' and '1'.

The third line contains t , a string of length n containing only the characters '0' and '1'.

Output

In a single line, output the expected number of girls who make it through.

Your answer is considered correct if its absolute or relative error doesn't exceed 10^{-6} . Namely, if your answer is a , and the jury's answer is b , then your answer is accepted if $\frac{|a-b|}{\max(1,|b|)} \leq 10^{-6}$.

Examples

standard input	standard output
3 1 2 010 000	2.6666666667
7 3 2 0010000 0111010	6.5000000000