Problem D. Do I Wanna Know?

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

You are in charge of organizing the new edition of Arctic Competition for Monkeys (ACM). There are n monkeys taking part in this competition. The monkeys are numbered from 1 to n. Every two monkeys participate in a separate contest with one problem against each other. There are no ties. Whenever $i < j$, monkey i defeats monkey j with fixed probability p.

You've been asked by your manager to calculate the *entertainment coefficient* of the competition. You have no idea what this coefficient means, neither does your manager, so you've decided to come up with a fairly weird definition.

Let $f(k)$ be the probability that there exists a set of exactly k monkeys such that every monkey in this set defeats every monkey not in this set.

Let $g(k)$ be a pseudo-random sequence defined recursively as follows:

$$g(1) = 1;$$
$$g(i+1) = (g(i))^2 + 2 \text{ (for } i \geq 2).$$

Then you've defined the entertainment coefficient to be equal to the following value:

$$\sum_{k=1}^{n-1} f(k) \cdot g(k).$$

Thus, you want to know the value of this sum for the known values of n and p. Or do you?

Input

The first line of the input contains a single integer n ($2 \leq n \leq 6 \cdot 10^5$) — the number of participants.

The second line contains two integers a and b ($1 \leq a < b \leq 100$) — the numerator and the denominator of fraction $\frac{a}{b} = p$.

Output

It can be shown that the answer can be represented as $\frac{P}{Q}$, where P and Q are coprime integers and $Q \not\equiv 0 \pmod{998244353}$.

Output the value of $P \cdot Q^{-1}$ modulo 998244353.

Example

standard input	standard output
4 2 6	517608191

Note

In the example test case, $f(1) = \frac{5}{9}$, $f(2) = \frac{35}{81}$ and $f(3) = \frac{5}{9}$. Also, $g(1) = 1$, $g(2) = 3$ and $g(3) = 11$. Thus, the answer is $\frac{5}{9} \cdot 1 + \frac{35}{81} \cdot 3 + \frac{5}{9} \cdot 11 = \frac{215}{27}$.