

Problem B. Mercurialist

- Time Limit: 2 sec

Problem Statement

This country has a medicine for immortality. Alice got $X + Y + Z$ bottles from the *Hatter*.

X bottles contain *elixir*. If Alice drinks it, she will immediately become immortal.

Y bottles contain mercury, and each has a different toxicity. If she drinks the i -th bottle, the following event i will occur after $K + i - 0.5$ days.

- Event i : Alice will immediately die if she has not drunk the elixir before event i . If she has drunk the elixir, she won't die.

The remaining Z bottles contain yogurt. Nothing will happen when Alice drinks it.

At the same time every morning, Alice chooses one non-empty bottle with equal probability and drinks it. If all bottles are empty, she does nothing.

Answer the probability that Alice will be alive 10^{10} days after the first day she starts drinking bottles. Note that Alice won't die other than events.

The probability can be expressed as $\frac{P}{Q}$ using coprime integers P and Q . Output a non-negative integer R less than 998244353 such that $R \times Q \equiv P \pmod{998244353}$. It can be proven that the probability is a rational number, and R is uniquely determined under the conditions of this problem.

Input

$X \ Y \ Z \ K$

The input satisfies the following constraints.

- All inputs consist of integers.
- $1 \leq X, Y, Z, K \leq 10^5$

Output

Output R defined in the statement. Add a new line at the end of the output.

Sample Input 1	Sample Output 1
1 1 1 1	831870295
Sample Input 2	Sample Output 2
1 1 1 100	1
Sample Input 3	Sample Output 3
2 2 1 2	565671801
Sample Input 4	Sample Output 4
12912 83717 73177 1920	685360162

In Sample Input 1, Alice will only die if she drinks mercury on day 1 and yogurt on day 2. The probability of death is $1/3 \times 1/2 = 1/6$, therefore the answer is $5/6$.

In Sample Input 2, Alice never dies.