Problem C. Casual Dancers

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	512 mebibytes

Three friends are studying random walks. To delve deeper into the topic, they have decided to play a game.

Initially, the friends stand at integer points x_1, x_2, x_3 on the number line.

The game lasts for k seconds.

Each second, an integer j is chosen uniformly at random from the set $\{1, 2, 3\}$. Then, friend j increases their coordinate by 1 with probability p percent, or decreases their coordinate by 1 with probability $(100 - p)$ percent.

Note that multiple friends can stand at the same point, both initially and during the game.

The *stretch* is defined as the length of the shortest segment on the number line containing all three friends.

Find the expected stretch after k seconds, modulo 998 244 353 (see the Output section for details).

Input

The first line contains three integers x_1, x_2, and x_3 ($-10^5 \le x_i \le 10^5$).

The second line contains a single integer k ($1 \le k \le 2 \cdot 10^5$).

The third line contains a single integer p ($0 \le p \le 100$).

Output

Print the expected stretch after k seconds, modulo 998 244 353.

Formally, let $M = 998\,244\,353$. It can be shown that the required expected stretch can be expressed as an irreducible fraction $\frac{p}{q}$, where p and q are integers and $q \not\equiv 0 \pmod{M}$. Print the integer equal to $p \cdot q^{-1} \bmod M$. In other words, print such an integer x that $0 \le x < M$ and $x \cdot q \equiv p \pmod{M}$.

Examples

standard input	*standard output*
0 0 0 1 58	1
1 2 2 1 100	332748119
5 2 3 4 50	160212060

Note

In the first example test, regardless of which friend and direction are chosen, the stretch will be equal to 1.

In the second example test, the actual expected stretch is $\frac{4}{3}$.

In the third example test, the actual expected stretch is $\frac{271}{81}$.