

# Five Phases

Input file:            standard input  
Output file:           standard output  
Time limit:            1 second  
Memory limit:         256 megabytes

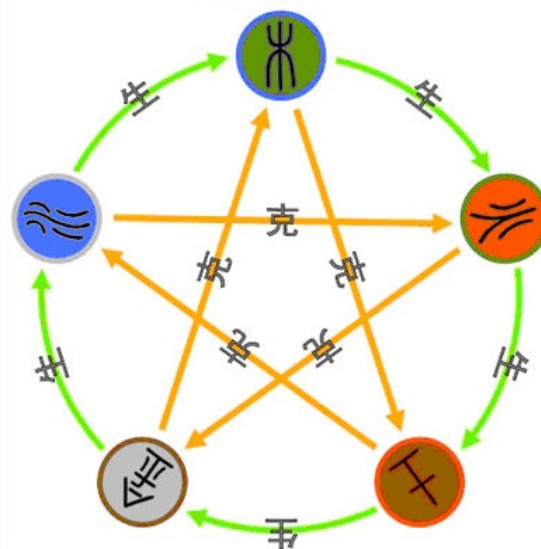
The *Five Phases* is a fivefold conceptual scheme that many traditional Chinese fields used to explain a wide array of phenomena, namely Fire, Water, Wood, Metal, and Earth. There are two kinds of basic interactions between them, each forming a cycle.

The *generating cycle* is

- Wood → Fire → Earth → Metal → Water → Wood

And the *overcoming cycle* is

- Wood → Earth → Water → Fire → Metal → Wood



Yukikaze the Great Mage is designing magic based on the five phases. By embedding intricate geometric patterns, she can adjust the amount of each phase imbued to the magic. We use five integral parameters, the amount of each phase imbued, to describe the magic invented by Yukikaze.

There are four types of perturbation methods to modify the parameters of the magic in the way she wants.

**Single Phase Tweaking** Increase or decrease the amount of one phase by one.

**Positive Propagation Tweaking** Increase the amount of the phase  $x$  by one. Then if we have  $x$  generates  $y$  in and  $y$  generates  $z$ , the amount of  $y$  and  $z$  is also increased by one. Or decrease the amount of the phase  $x$  by one. Then if we have  $x$  generates  $y$  in and  $y$  generates  $z$ , the amount of  $y$  and  $z$  is also decreased by one.

**Negative Propagation Tweaking** Increase the amount of the phase  $x$  by one. Then if we have  $x$  generates  $y$  and  $y$  overcomes  $z$ , the amount of  $y$  is increased by one and the amount of  $z$  is decreased by one. Or decrease the amount of the phase  $x$  by one. Then if we have  $x$  generates  $y$  and  $y$  overcomes  $z$ , the amount of  $y$  is decreased by one and the amount of  $z$  is increased by one.

**Global Tweaking** Increase or decrease the amount of all phases by one.

For example, we have Metal generating Water and Water generating Wood. By applying Positive Propagation Tweaking started by increasing the amount of Metal by one, the result is that the amount of Metal, Water, Wood are all increased by one. For another example, we have Fire generating Earth and Earth overcoming Water. By applying Negative Propagation Tweaking started by decreasing the amount of Fire by one, the result is that the amount of Fire and Earth are both decreased by one, and the amount of water is increased by one.

Yukikaze wants to create some novel magic. Initially, the five parameters are all zero. Now given the five parameters describing the magic and the number of steps she wants to use, she wonders how many ways there are to create the magic by applying the perturbation methods described above, exactly one perturbation method in each step. Two ways are considered different if there exists an integer  $i$  that methods used in the  $i$ -th step are different. Since the answer can be too large, output the answer modulo 998244353.

## Input

The first line contains a single integer  $T$  ( $1 \leq T \leq 10^5$ ), denoting the number of magic that Yukikaze wants to create.

Each of the next  $T$  lines contains six integers  $c_{\text{Wood}}, c_{\text{Fire}}, c_{\text{Earth}}, c_{\text{Metal}}, c_{\text{Water}}$  ( $-10^5 \leq c_{\text{Wood}}, c_{\text{Fire}}, c_{\text{Earth}}, c_{\text{Metal}}, c_{\text{Water}} \leq 10^5$ ) and  $k$  ( $0 \leq k \leq 10^5$ ), indicating the five parameters of the magic and the number of steps Yukikaze wants to use.

## Output

For each magic, output the number of ways to create it in a single line, modulo 998244353.

## Example

standard input	standard output
5	0
0 0 0 0 0 1	10000
0 0 0 3 2 5	100000
1 1 1 1 1 5	576
3 2 1 1 1 4	2500
0 -1 0 2 4 5	