Problem F

Linear Diophantine Tidbits

Input: Standard Input
Output: Standard Output

Solving linear Diophantine equations with three variables is not the easiest thing in the world and in this problem you will have to do something similar to that. In this problem we will deal with a specific Diophantine equation 1073x + 1827y + 3108z = 270396. Of course this equation has infinite number of all integer (The values of x, y and z are all integers) solutions, so it is pointless to ask the number of solutions. So you will have to find special type of all integer solutions.

You will be given three different possible all integer solution triples of this equation. Many other solutions can be found by taking weighted average of any two of these integer solutions (Not necessarily these newly found solutions are integer solutions). And these new solutions can be used with the given three solutions to find many other solutions by taking weighted average of any two. Your job is to find the total number of all integer solution triples obtainable in this way.

For example suppose the given three possible solutions are ($r1_x$, $r1_y$, $r1_z$), ($r2_x$, $r2_y$, $r2_z$) and ($r3_x$, $r3_y$, $r3_z$). A new solution (r_x, r_y, r_z) can be found by taking the weighted average of first two of these two solutions. That is $r_x = \frac{wr1_x + vr2_x}{w+v}$, $r_y = \frac{wr1_y + vr2_y}{w+v}$, $r_z = \frac{wr1_z + vr2_z}{w+v}$. Here ($w \geq 0$, $v \geq 0$ and $(w+v)>0$). Of course for different values of w and v many solutions can be found and may be only a few of them are all integer solutions. All the new found solutions along with the given three solutions can be used to find infinite number of solutions by taking the weighed average of any two. Although such solutions are infinite in number, there are only a finite number of all integer solutions found in this way. You are to find the total number of different all integer solutions (triples) found.

Input

The first line of the input file contains an integer N ($0<N<16001$) which denotes the total number of input sets. Each of the next N lines contains nine integers $r1_x$, $r1_y$, $r1_z$, $r2_x$, $r2_y$, $r2_z$, $r3_x$, $r3_y$, $r3_z$. These nine integers mean that ($r1_x$, $r1_y$, $r1_z$), ($r2_x$, $r2_y$, $r2_z$) and ($r3_x$, $r3_y$, $r3_z$) are three possible all integer solutions of the Diophantine equation 1073x + 1827y + 3108z = 270396.

Output

For each set of input produce one line of output. This line contains an integer T which denotes the total number of all integer solutions that can be obtained by taking weighted average of the given three all integer solutions and the subsequent solutions (not necessarily all integer).

Sample Input	Output for Sample Input
3 168 -296 203 315 -925 522 42 -814 551 -840 740 -58 441 37 -87 -189 111 87 987 851 -754 756 -592 174 -63 -555 435	28 59 194

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