

5107 A hard Aoshu Problem

Math Olympiad is called “Aoshu” in China. Aoshu is very popular in elementary schools. Nowadays, Aoshu is getting more and more difficult. Here is a classic Aoshu problem:

$$ABBDE_ABCCC = BDBDE$$

In the equation above, a letter stands for a digit (0 - 9), and different letters stands for different digits. You can fill the blank with ‘+’, ‘-’, ‘×’ or ‘÷’.

How to make the equation right? Here is a solution:

$$12245 + 12000 = 24245$$

In that solution, $A = 1$, $B = 2$, $C = 0$, $D = 4$, $E = 5$, and ‘+’ is filled in the blank.

When I was a kid, finding a solution is OK. But now, my daughter’s teacher tells her to find all solutions. That’s terrible. I doubt whether her teacher really knows how many solutions are there. So please write a program for me to solve this kind of problems.

Input

The first line of the input is an integer T ($T \leq 20$) indicating the number of test cases.

Each test case is a line which is in the format below:

$s_1 s_2 s_3$

s_1 , s_2 and s_3 are all strings which are made up of capital letters. Those capital letters only include ‘A’, ‘B’, ‘C’, ‘D’ and ‘E’, so forget about ‘F’ to ‘Z’. The length of s_1 , s_2 or s_3 is no more than 8.

When you put a ‘=’ between s_2 and s_3 , and put a operator (‘+’, ‘-’, ‘×’ or ‘÷’) between s_1 and s_2 , and replace every capital letter with a digit, you get a equation.

You should figure out the number of solutions making the equation right.

Please note that same letters must be replaced by same digits, and different letters must be replaced by different digits.

If a number in the equation is more than one digit, it must not have leading zero.

Output

For each test case, print an integer in a line. It represents the number of solutions.

Sample Input

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2
A A A
BCD BCD B
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Sample Output

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5
72
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