Problem H. Count Numbers

Now Alice wants to sum up all integers whose digit sum is exactly a^b.

However we all know the number of this kind of integers are unlimited. So she decides to sum up all these numbers whose each digit is non-zero.

Since the answer could be large, she only needs the remainder when the answer divided by a given integer p.

Input

The input has several test cases and the first line contains the integer t ($1 \leq t \leq 400$) which is the number of test cases.

For each test case, a line consisting of three integers a, b ($1 \leq a, b \leq 20$) and p ($2 \leq p \leq 10^9$) describes the restriction of the digit sum and the given integer p.

Output

For each test case, output a line with the required answer.

Here we provide an explanation of the following sample output. All integers satisfying the restriction in the input are $4, 13, 31, 22, 121, 112, 211$ and 1111. The sum of them all is $4 + 13 + 31 + 22 + 121 + 112 + 211 + 1111 = 1625$ and that is exactly the sample output.

Example

standard input	standard output
5 2 1 1000000 3 1 1000000 2 2 1000000 3 3 1000000 10 1 1000000	13 147 1625 877377 935943