

The 28th Annual
ACM International Collegiate
Programming Contest
ASIA Regional - Seoul



Practice Problem B

Remainder

Input: rem.in

When an integer n is given, determine the remainder r of n divided by 3 ($0 \leq r \leq 2$). For example, when -2 is divided by 3, its remainder is 1.

Input

The input consists of T test cases. The number of test cases T is given in the first line of the input file. Each test case consists of two lines. The first line denotes the number of digits k in each test case ($1 \leq k \leq 31$). The first character in the second line is +/- sign that denotes the sign of the integer. And k -digit integer n , $1 \leq n < 10^{31}$, follows the sign.

Output

Print exactly one line for each test case. The line should contain one integer that represents the remainder of the integer in the test case divided by 3.

Sample input	Sample output
3	0
10	2
+3333333333	0
2	
-67	
20	
+66666666666666666666	