Terrible Mathematics

Problem Code: **BADMATH**

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Statement

In a far away Galaxy of Tilky Way, there was a planet Tarth where the sport of Tompetitive Toding was very popular. According to legends, there lived a setter known for his deep mathematical DP problems.

You are given a bit string S (string containing only 0's and 1's) of length N with some numbers missing. Each missing number/bit is replaced by a "_". Find number of ways of filling the blanks with 0 or 1 such that the resulting number (which is in binary form) is divisible by M.

Input:

- The first line has a single integer T, denoting number of test cases per file.
- The first line of each testcase contains 2 integers, N and M.
- The next line of input contains the string S.

Output:

For each test case, in a new line, print a single integer, denoting number of ways of filling the blanks such that resulting number is divisible by M.

Constraints

- $1 \leq T \leq 10$
- $1 \leq N, M \leq 100$
- S consists only of 0 , 1 and _
- Number of _ in a single string is ≤ 15.

Subtasks

- **40% points** - $N \leq 20$
- **60% points** - Original Constraints

Sample Input:

```
2
3 5
10_
3 2
1_0
```

Sample Output:

```
1
2
```

EXPLANATION:

- For first case, we can fill the blank with 1 to get $(101)_2 \equiv 5$ which is divisible by 5 (recall that the number is in binary!)
- For second test case, we can fill the blank with 0 or 1 and get 4 and 6 respectively, both of which are divisible by 2.

Author:	5★ vijju123
Date Added:	19-05-2019
Time Limit:	2 secs
Source Limit:	50000 Bytes
Languages:	PYTH 3.6, JAVA, C, CPP14, PYTH, PYP3, CS2, ADA, PYPY, TEXT, PAS fpc, NODEJS, RUBY, PHP, GO, HASK, TCL, kotlin, PERL, SCALA, LUA, BASH, JS, rust, LISP sbcl, PAS gpc, BF, CLOJ, R, D, CAML, swift, FORT, ASM, FS, WSPC, LISP clisp, SCM guile, PERL6, ERL, CLPS, PRLG, ICK, NICE, ICON, COB, SCM chicken, PIKE, SCM qobi, ST, NEM

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