Not a work of Idol

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	1024 megabytes

The background story in the Chinese statements is removed due to the translation difficulties. >_<

Little Cyan Fish wants to count the number of labeled d-regular graphs with n vertices. Little Cyan Fish wants to remind you that a d-regular graph is an undirected simple graph (with no multiple edges or self-loops) where each vertex has a degree exactly equal to d.

Two regular graphs G_1 and G_2 are said to be different if there exists a pair of vertices v_1 and v_2, such that $(v_1, v_2) \in E_1$ but $(v_1, v_2) \notin E_2$, or $(v_1, v_2) \in E_2$ but $(v_1, v_2) \notin E_1$.

Of course, this number can be very large, so he wants to take the result modulo a **small** prime number p that does not exceed 7.

Input

Each test case contains multiple sets of test data. The first line of input contains two integers T and p ($1 \le T \le 10^4, p \in \{2, 3, 5, 7\}$), representing the number of test data sets and the modulus.

The next T lines each contain two integers n, d ($0 \le d < n \le 10^{18}$).

Please note that, the modulus for all test cases in a single test file is the same

Output

For each set of test data, output a single line contains a single integer, representing the answer.

Example

standard input	standard output
5 3 3 2 9 6 20 10 100 10 1919810 114514	1 1 2 0 0