

Life, the Universe, and Everything II

This problem tests your mathematic knowledge and your programming ability very much. Your task is to calculate the number of different Minimum Spanning Trees (MSTs) of a special undirected unweighted graph. The graph has n nodes numbered from 1 to n , and there is an edge between node i ($1 \leq i \leq n$) and node j ($1 \leq j \leq n$) if and only if $0 < |i - j| \leq k$.

Input

Multiple test cases, the number of them (≤ 8) is given in the very first line.

Each test case contains one line with two space-separated numbers k ($1 \leq k \leq 5$) and n ($1 \leq n \leq 10^{15}$).

Output

For each test case you should output one line, the number of different MSTs of the corresponding graph modulo 65521.

Example

Input:

1
3 5

Output:

75