

Problem I

Hidden Truth in Recurrence

Time Limit: 1 second

You are given a recursive function, which has the following form:

$$f(0,0) = 1$$

$$f(n,r) = \sum_{i=0}^{k-1} f(n-1, r-i) \text{ when } [(n > 0) \text{ and } (0 \leq r < n(k-1)+1)]$$

$$f(n,r) = 0 \text{ otherwise}$$

Now, you have to find: $x = \left(\sum_{i=0}^{n(k-1)} f(n,i) \right) \bmod m$, where $(m = 10^t)$

$n \backslash i$	-2	-1	0	1	2	3	4	5	6	7	8	9	10
0	0	0	1	0	0	0	0	0	0	0	0	0	0
1	0	0	1	1	1	0	0	0	0	0	0	0	0
2	0	0	1	2	3	2	1	0	0	0	0	0	0
3	0	0	1	3	6	7	6	3	1	0	0	0	0
4	0	0	1	4	10	16	19	16	10	4	1	0	0
5	0	0	1	5	15	30	45	51	45	30	15	5	1

A partially filled table for $k=3$

Input

There will be less than **1001** lines of inputs in the input file. Each line will contain three integers: **k** ($0 < k < 10^{19}$), **n** ($0 < n < 10^{19}$) and **t** ($0 < t < 10$). Input will be terminated by three zeros for the value of k, n and t. You must not process this case.

Output

For each line of input, output the value of **x**. The output should be in the format shown in the sample output.

Sample Input	Sample Output
1234 1234 4 2323 999999999999 8 4 99999 9 888 888 8 0 0 0	Case #1: 736 Case #2: 39087387 Case #3: 494777344 Case #4: 91255296

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