# Problem K
## Climbing Stairs
### Time limit: 3 seconds

There is a long staircase over a mountain. It takes $N$-steps stairs to reach the top. Each time you can climb 1, 2, 3, $\cdots$, or $H$ steps. But if you don't want to climb all the steps, you can hire bearers at $0^{th}$ step to take you to some $k^{th}$ step and then climb to the top by yourself. But the bearers will charge you $0, 1, 2, \cdots$, or $k^H \times H^k$ dollars randomly by rolling a wheel. How many distinct methods($ANS$) are there to reach the top? For the convenience of verifying the answer, please output $ANS$ mod $M$ for a given positive integer $M$.

Let us consider the example of $H = 2$, and $N = 3$. You can climb 1 step three times. The method is denoted as $(1, 1, 1)$. You can climb 1 step and then climb 2 steps, which is denoted as $(1, 2)$. You can climb 2 steps and then climb 1 step, which is denoted as $(2, 1)$. Bearers can take you to the first step, and then you climb 1 step twice, which is denoted as $(B1, 1, 1)$ with $1^2 \times 2^1 + 1$ methods. Bearers can take you to the first step, and then you climb 2 steps, which is denoted as $(B1, 2)$ with $1^2 \times 2^1 + 1$ methods. Bearers can take you to the second step, and then you climb 1 step, which is denoted as $(B2, 1)$ with $2^2 \times 2^2 + 1$ methods. Bearers can take you to the third step, which is denoted as $(B3)$ with $3^2 \times 2^3 + 1$ methods. So the number of methods are $1 + 1 + 1 + (1^2 \times 2^1 + 1) + (1^2 \times 2^1 + 1) + (2^2 \times 2^2 + 1) + (3^2 \times 2^3 + 1) = 99$. If an integer $M = 5$ is given, then please output $99 \bmod 5 = 4$.

## Technical Specification

1. There are at most 10 test cases.
2. $2 \leq M \leq 1,000,000,000$.
3. $0 \leq k \leq N$
4. $1 \leq H \leq 15$.
5. $1 \leq N \leq 10^{64}$

## Input Format

The first line contains an integer indicating the number of test cases. Each test case contains three integers, $M$, $H$, and $N$.

## Output Format

For each test case, please output the number $(\bmod M)$ of distinct methods to reach the top.

## Sample Input

```
2
999 2 3
8 1 3
```

## Sample Output for the Sample Input

```
99
2
```