8265   Coefficient Computation

In mathematics, any of the positive integers that occurs as a coefficient in the binomial theorem is a binomial coefficient. A binomial coefficient is commonly indexed by a pair of integers $n \ge k \ge 0$ and is denoted by $C(n, k)$. It is the coefficient of the x^k term in the polynomial expansion of the binomial ower $(1 + x)^n$, which is equal to $\frac{n!}{k!(n-k)!}$.

Furthermore, in combinatorics, it is the number of ways to choose a subset of k items from a set of n items given that the order of selection does not matter. There are several ways to compute $C(n, k)$. The above formula is factorial formula. And the following formula is the recursive formula,

$$C(n, k) = \begin{cases} C(n-1, k-1) + C(n-1, k), & 1 < k \le n-1 \\ 1, & k = 0 \text{ or } k = n \\ n, & k = 1 \end{cases}$$

Now, give three integers n, k and d with $n \ge k \ge 0$ and $1 < d < 10$. Please write a program to compute $C(n, k)$ and output the result in base d. That is, the result value should be converted from base 10 to base d.

Technical Specification

1. The number of test cases is no larger than 10.

2. n is an integer and $0 \le n \le 300$.

3. k is an integer and $0 \le k \le n$.

4. d is an integer and $1 < d < 10$.

Input

The first line of the input contains an integer indicating the number of test cases to follow.

Each test case contains three integers n, k and d, separated by space on a single line.

Output

For each test case, output $C(n, k)$ in base d in a line.

Sample Input

```
3
20 10 3
150 50 8
10 2 7
```

Sample Output

```
100101102211
3544707612042151714153037506344273427337334454
63
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