Little Mou is very fond of eggs. She has n baskets for keeping her colorful eggs. Each basket contains eggs of different colors. The baskets are numbered from 1 to n. She has a strange hobby about these eggs. On each day, she takes each basket starting from the n-th basket. When she is doing this for basket i, she counts all eggs placed in baskets 1 to i (inclusive) and takes their sum. Let this value of sum be counti. She removes all old eggs from the ith basket and keeps counti new eggs in the i-th basket. After that she puts all the old eggs of the i-th basket in the $(i-1)$-th basket removing the old eggs of the $(i-1)$-th basket. As Mou is very fond of eggs, she eats all old eggs of the $(i-1)$-th basket. And when she has finished eating, she repeats the work for this $(i-1)$-th basket. If she reaches the 1st basket, she stops her work and doesn't eat any more eggs and goes to sleep!

For example let Mou has 3 baskets at day 1. 1st basket contains 1 egg, 2nd basket contains 1 egg and the 3rd basket contains 2 eggs.

So simulation for day 3 follows:

Basket Index =¿		3	2	1
Day 1	At the end	2	1	1
Day 2	Initial	2	1	1
	Step 1	2+1+1	2	1
	Step 2	4	2+1	2
	Step 2	4	3	2
Day 3	Initial	4	3	2
	Step 1	4+3+2	4	2
	Step 2	9	4+2	4
	Step 3	9	6	4

Now the problem is given n, d and the number of eggs in each basket eggi, your job is to find the number of eggs in each basket after d days. As the number can be very big output answer *modulo* 1,000,000,007.

Input

The first line of the input file contains an integer T ($T \leq 111$) which denotes the total number of test cases. The description of each test case is given below:

Two integers N ($1 \leq n \leq 60$) and d ($1 \leq d \leq 1,000,000,000$), followed by n integers denoting the number of eggs in each basket starting from 1 to n.

Output

For each test case print one line of output containing the number of eggs in each basket after d days have passed separated by single spaces between them. See the sample output for more details. As the numbers can be very big output answer *modulo* 1,000,000,007.

Sample Input

```
3
3 7
1 2 3
2 2
4 5
2 1
1 10
```

Sample Output

```
129 189 277
5 9
1 10
```