

First: 月之数

Time Limit: 1000/1000 MS (Java/Others) Memory Limit: 32768/32768 K (Java/Others)

Total Submission(s): 10531 Accepted Submission(s): 6175

Problem Description

当寒月还在读大一的时候，他在了一本武林秘籍中（据后来考证，估计是计算机基础，狂汗-ing），发现了神奇的二进制数。

如果一个正整数 m 表示成二进制，它的位数为 n （不包含前导 0），寒月称它为一个 n 二进制数。所有的 n 二进制数中，1 的总个数被称为 n 对应的月之数。

例如，3 二进制数总共有 4 个，分别是 4（100）、5（101）、6（110）、7（111），他们中 1 的个数一共是 $1+2+2+3=8$ ，所以 3 对应的月之数就是 8。

Input

给你一个整数 T ，表示输入数据的组数，接下来有 T 行，每行包含一个正整数 n （ $1 \leq n \leq 20$ ）。

Output

对于每个 n ，在一行内输出 n 对应的月之数。

Sample Input

```
3
1
2
3
```

Sample Output

```
1
3
8
```

Second: Tiling_easy version

Time Limit: 1000/1000 MS (Java/Others) Memory Limit: 32768/32768 K (Java/Others)

Total Submission(s): 8447 Accepted Submission(s): 6507

Problem Description

有一个大小是 $2 \times n$ 的网格，现在需要用 2 种规格的骨牌铺满，骨牌规格分别是 2×1 和 2×2 ，请计算一共有多少种铺设的方法。

Input

输入的第一行包含一个正整数 T ($T \leq 20$)，表示一共有 T 组数据，接着是 T 行数据，每行包含一个正整数 N ($N \leq 30$)，表示网格的大小是 2 行 N 列。

Output

输出一共有多少种铺设的方法，每组数据的输出占一行。

Sample Input

```
3
2
8
12
```

Sample Output

```
3
171
2731
```

Third: A+B for Input-Output Practice (VIII)

Time Limit: 2000/1000 MS (Java/Others) Memory Limit: 65536/32768 K (Java/Others)

Total Submission(s): 159428 Accepted Submission(s): 48172

Problem Description

Your task is to calculate the sum of some integers.

Input

Input contains an integer N in the first line, and then N lines follow. Each line starts with a integer M , and then M integers follow in the same line.

Output

For each group of input integers you should output their sum in one line, and you must note that there is a blank line between outputs.

Sample Input

```
3
4 1 2 3 4
5 1 2 3 4 5
3 1 2 3
```

Sample Output

```
10

15

6
```

Fourth: 压缩问题

Time Limit: 1000/1000 MS (Java/Others) Memory Limit: 32768/32768 K (Java/Others)

Total Submission(s): 8447 Accepted Submission(s): 6507

Problem Description

你的任务是将一串字符实现简单的压缩

Input

输入一个 N ，表示要进行 N 次，在每一次中，都输入一串字符。

Output

输出压缩后的字符串

Sample Input

```
2
aabcccccaaa
welcometonnowcoderrrrr
```

Sample Output

a2bc5a3

welcomeron2owcoder5

Fifth:Hello World!

Time Limit: 2000/1000 MS (Java/Others) Memory Limit: 32768/32768 K (Java/Others)

Total Submission(s): 694 Accepted Submission(s): 275

Problem Description

Your task is to print ... er ... "Hello World" ... in a fantastic way -- using a beautiful font.

I've sent you a nice font for you to use, but I'm too busy to tell you how. Can you help yourself?

Input

The first line contains a single integer T ($T \leq 20$), the number of test cases.

Each case begins with an integer C ($1 \leq C \leq 80$) in a single line, then each of the following C lines contains five two-digit numbers in hex (letters will be in uppercase). Don't ask me what they mean, I'm too busy...

Output

For each test case, print the case number in the first line, then followed by a blank line.

After that, print all T characters. Use a single blank column of spaces between two consecutive characters. Each line should have exactly 6C-1 character (again, don't ask me why).

Don't forget to print another blank line after the output of each test case.

Sample Input

2

11

7F 08 08 08 7F

38 54 54 54 18

00 41 7F 40 00

00 41 7F 40 00

38 44 44 44 38

00 00 00 00 00

3F 40 38 40 3F

38 44 44 44 38

Sample Output

There are multiple test cases. Each test case consists of two numbers a and b ($0 < a, b \leq 2^{30}$).

Output

For each test case, you should output the a^b 's last digit number.

Sample Input

```
7 66
8 800
```

Sample Output

```
9
6
```

Extra

Big Number

Time Limit: 2000/1000 MS (Java/Others) Memory Limit: 65536/32768 K (Java/Others)

Total Submission(s): 38050 Accepted Submission(s): 18367

Problem Description

In many applications very large integers numbers are required. Some of these applications are using keys for secure transmission of data, encryption, etc. In this problem you are given a number, you have to determine the number of digits in the factorial of the number.

Input

Input consists of several lines of integer numbers. The first line contains an integer n , which is the number of cases to be tested, followed by n lines, one integer $1 \leq n \leq 10^7$ on each line.

Output

The output contains the number of digits in the factorial of the integers appearing in the input.

Sample Input

2
10
20

Sample Output

7
19