Problem 2: Big Ben's Big Birthday
3+2=5 Points

Problem ID: `birthday`
Rank: `1+2`

Introduction

This is Big Ben the Brown Bear! He's the mascot of CALICO! Here are some fun facts:

- He is 8 feet tall and weighs 1200 lbs.
- He loves eating paint and bricks.
- He will be 13 years old on 11/21/2023.
- CALICO was founded on his first birthday.
- He can prove P = NP but is too lazy to do it.
- He was named after the wrong clock tower.
- He's timeless and immortal.
- He's fluent in C++, Java and P*thon.
- He only sees you when you're sleeping.
- He will outrun you.
- He's everywhere.
- Turn around HE'S RIGHT BEHIND YOU.

Problem Statement

Big Ben uses the CALICalendar to keep track of his birthday. Each year, the number of months per year and the number of days per month both increase by 1. The first few years of the CALICalendar are shown below:

	Yr. 1	Year 2		Year 3			Year 4			
Month 1	🎂	1	2	1	2	3	1	2	3	4
Month 2		🎂	4	4	5	6	5	6	7	8
Month 3				🎂	8	9	9	10	11	12
Month 4							🎂	14	15	16

Big Ben's birthday is on the first day of the last month each year of the CALICalendar; his 1-year-old birthday was on the only day of year 1. How many days after Big Ben's 1-year-old birthday will it be his $\mathbf{N}$-year-old birthday?

*Note: Templates are available for this problem—and **all other problems in this contest**—in Python, Java, and C++! Find them in the contest.zip provided at the start of the contest. Templates handle input and output for you, so you can just fill out a single function.*

Input Format

The first line of the input contains a single integer $\mathbf{T}$ denoting the number of test cases that follow. Each test case is described in a single line containing a single integer $\mathbf{N}$ denoting the given year of Big Ben's birthday.

Output Format

For each test case, output a single line containing a single integer denoting the number of days Big Ben's $\mathbf{N}$-year-old birthday is after Big Ben's 1-year-old birthday.

*Careful! For the **bonus test set only**, if you are a Java or C/C++ programmer, be aware that the int variable type may be too small to contain the final answer! Java programmers can use variable types long or float instead, and likewise long long or float for C/C++.*

Constraints

Main Test Set

$1 \leq \mathbf{T}, \mathbf{N} \leq 100$

Bonus Test Set

$1 \leq \mathbf{T}, \mathbf{N} \leq 10^5$

Sample Test Cases

Sample Input Download

```
6
2
3
4
12
69
1
```

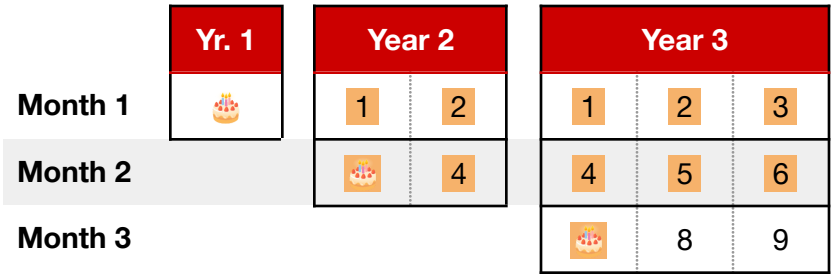
Sample Output Download

```
3
11
26
638
111826
0
```

Sample Explanations

For test case #1, we have $\mathbf{N} = 2$. Thus, we want to find out how many days Big Ben's 2-year-old birthday is after his 1-year-old birthday. There are 2 months in year 2 and 2 days in each month of year 2. There are 3 days between these two birthdays: day 1 of year 2, day 2 of year 2, and day 3 of year 2 (his 2-year-old birthday).

For test case #2, we want to find how many days Big Ben's 3-year-old birthday is after his 1-year-old birthday. There are 2 months in year 2 with 2 days in each month and 3 months in year 3 with 3 days in each month. Between these two birthdays, there are 4 days in year 2, 6 days in the first two months of year 3, and finally one more day, giving us the answer of $4 + 6 + 1 = 11$ days in total.



For test case #3, we want to find how many days Big Ben's 4-year-old birthday is after his 1-year-old birthday. Between the birthdays there are 4 days in year 2, 9 days in year 3, and 12 days in the first 3 months of week 4, and finally one more day, giving us the answer of $4 + 9 + 12 + 1 = 26$ days in total.

	Yr. 1	Year 2		Year 3			Year 4			
Month 1	🎂	1	2	1	2	3	1	2	3	4
Month 2		🎂	4	4	5	6	5	6	7	8
Month 3				🎂	8	9	9	10	11	12
Month 4							🎂	14	15	16

For test case #6, $\mathbf{N} = 1$. The number of days until his 1-year-old birthday since his 1-year-old birthday is 0 since it's the same day.

	Yr. 1
Month 1	🎂

第 2 题： BigBen的生日
3+2=5 分

问题标识符: 生日
难度等级: 1

问题背景

这是 Big Ben，他是 CALICO 的吉祥物！这是一些关于他的资料：

- 他身高 8 英尺，体重 1200磅
- 他喜欢吃油漆和砖头
- 他在 2023 年 11 月 21 日将满 13 岁
- CALICO 是在他一岁那天成立的
- 他能证明 P=NP，但是懒得证明给你看
- 他是大本钟的忠实粉丝！
- 他长生不老
- 他是永恒的
- 他喜欢盯着你睡觉
- 他跑得比你快
- 他无处不在
- 转身，他就在你身后！

问题描述

Big Ben 使用 CALICalendar 来记录他的生日。每年月份的数量和天数各加一，如下图所示：

	第 1 年	第 2 年		第 3 年			第 4 年			
第 1 个月	🎂	1	2	1	2	3	1	2	3	4
第 2 个月		🎂	4	4	5	6	5	6	7	8
第 3 个月				🎂	8	9	9	10	11	12
第 4 个月							🎂	14	15	16

每年 Big Ben 的生日是 CALICalendar 每一年最后一个月的第一天；他一岁生日是第一年唯一的那天。请问 Big Ben 第 N 岁生日时，距他一岁生日过了多少天?

注意：该问题以及本次活动中的所有其他问题都有 Python, Java, 和 C++版本的模板！你可以在活动开始时提供的 contest.zip 文件中找到它们。模板会帮你处理输入输出格式，让你可以直接编写问题的解决方案！

输入格式

输入的第一行包含一个整数 $\mathbf{T}$，表示后面的测试用例数量。每个测试用例由一行描述，包含一个单独的整数 $\mathbf{N}$，表示 Big Ben 生日所在的年份。

输出格式

对于每个测试用例，输出一行包含一个单独的整数，表示 Big Ben 第 N 岁生日时，距他一岁过了多少天。

*注意！**对于附加测试集**，如果你是 Java 或 C/C++ 程序员，请注意 int 变量类型可能不足以包含最终答案！Java 程序员可以改用 long 或 float 类型变量，C/C++ 程序员同样可以使用 long long 或 float。*

限制条件

主测试集

$1 \le \mathbf{T}, \mathbf{N} \le 100$

附加测试集

$1 \le \mathbf{T}, \mathbf{N} \le 10^5$

测试样例

样例输入 下载

```
6
2
3
4
12
69
1
```

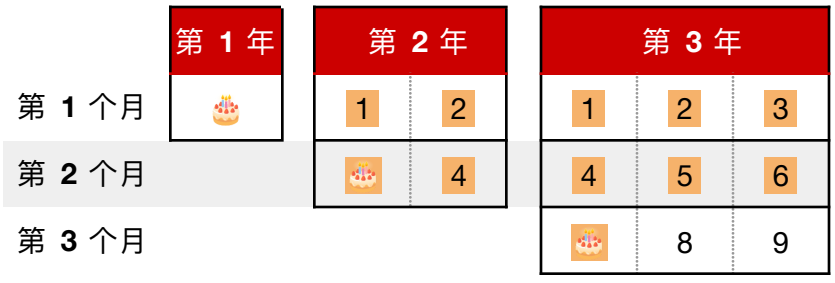
样例输出 下载

```
3
11
26
638
111826
0
```

样例解释

对于测试用例 #1, $\mathbf{N} = 2$。我们想知道 Big Ben 的两岁生日距他的一岁生日过了多少天。第二年有 2 个月，每个月有 2 天。这两个生日之间相隔 3 天：第二年的第 1 天、 第 2 天和第 3 天（他的两岁生日）。

对于测试用例 #2，我们想知道 Big Ben 三岁生日距他一岁生日过了多少天。第二年有 2 个月每个月有 2 天；第三年有 3 月，每个月有 3 天。在这两个生日之间，第二年有 4 天，第三年前两个月有 6 天，最后再加一天，总共为 4 + 6 + 1 = 11 天。



对于测试用例 #3，我们想知道 Big Ben 四岁生日距他一岁生日过了多少天。在两个生日之间，第二年有 4 天，第三年有 9 天，第四年前三个月有 12 天，最后再加一天，总共为 4 + 9 + 12 + 1 = 26 天。

	第 1 年	第 2 年		第 3 年			第 4 年			
第 1 个月	🎂	1	2	1	2	3	1	2	3	4
第 2 个月		🎂	4	4	5	6	5	6	7	8
第 3 个月				🎂	8	9	9	10	11	12
第 4 个月							🎂	14	15	16

对于测试用例 #5，N = 1。他一岁生日距离一岁生日的天数为 0，因为是同一天。

	第 1 年
第 1 个月	🎂