

Absurdistanian Calendar

One of the first things Lea learnt when she first visited Absurdistan was their unusual approach to using calendars. They decided that the weekend is the best part of the week, so they extended it to three days with a new “Chillday” between Saturday and Sunday. This day is used to recover between the parties on the other days of the weekend. Thus, an absurdistanian week has eight days.

Also, they are very superstitious. The Absurdistanians believe that you have to be very careful to not cause any accident on every thirteenth of the month, no matter whether it is a Friday or any other day of the week. Skipping this day of the month is of no use since this will only result in more disasters. After this bad day there will probably not be any good day this month anymore, so they just end each month after the thirteenth.

Lea is very confused by this local calendar and while thinking about it she forgot the dates of her friend’s birthdays. She knows how many days are still left until the birthdays and needs to know on which day of the month each birthday occurs. The month itself is not important, she just wants to know for all birthdays whether it will be on a thirteenth of a month. To make things a little easier Lea wrote the numbers of days until the birthdays in base 8 to represent a full week by 10 for instance. So she sits down on this Chillday which happens to be the third of the month and asks for your help. Can you solve the problem?

Input

The first line of the input contains an integer t . t test cases follow.

Each test case consists of a single line containing the number x of days to pass until the birthday of one of Lea’s friends in base 8.

Output

For each test case, output one line containing “Case # i : y ” where i is its number, starting at 1, and y is the number of the birthday during its month. Print these days as usual, namely in base 10. Each line of the output should end with a line break.

Constraints

- $1 \leq t \leq 20$
- $1 \leq x \leq 8^{2 \cdot 10^5}$

Sample Explanation

In the first sample Lea wants to know about a day 17_8 days in the future, that is 15_{10} days base 10. Today is the third, so it takes 10 more days to finish the month. Therefore, the birthday in question is the fifth of its month.

Sample Input 1

```
5
17
12
13
1
12345
```

Sample Output 1

```
Case #1: 5
Case #2: 13
Case #3: 1
Case #4: 4
Case #5: 9
```

Sample Input 2

20
62025701
732005
6522000
6505013
3573353
43537
4510425464
442557432
552260
65672
10070270
166255113
3055763
6101546
1543116
300610251
6612345631
4561615336
610624
303335476

Sample Output 2

Case #1: 13
Case #2: 12
Case #3: 10
Case #4: 8
Case #5: 11
Case #6: 9
Case #7: 9
Case #8: 10
Case #9: 13
Case #10: 8
Case #11: 4
Case #12: 6
Case #13: 9
Case #14: 4
Case #15: 9
Case #16: 3
Case #17: 2
Case #18: 1
Case #19: 1
Case #20: 9