A - Winter is Coming

Context

Autumn has arrived, with its fallen leaves, the sun setting early, the first storms...

But autumn does not have to be a sad time. It is the time to begin a new course, with new friends, new subjects, new projects and, of course, a new edition of the Programming Olympiad in Murcia.

Besides, now we can truly say that winter is coming.

The Problem

We want to be prepared for the winter. Thus, given a certain day from the months of August to December, you have to compute how many days it is before winter. In this problem, we will suppose that winter is always on the 21st of December.

For example, if we are on the 1st of August, we can say that it is 142 days to winter; if we are on the 20th of December, it is 1 day to winter; and if we are on the 21st of December (or after), we are in winter.

The Input

The input contains several sample days. The input ends with a line containing only a 0.

Each day is indicated in the following format. First, there is a number from 1 to 30, or from 1 to 31, depending the month. Then, there is a blank space. And then, there are 3 characters indicating the month abbreviation. These are Aug, Sep, Oct, Nov and Dec, for August, September, October, November and December, respectively. The day will always be a valid date.

The Output

For each sample day, the output must contain one line. If the date is before winter, it must be:

`X days to winter`

Where *X* is the solution to the problem. If the date is in winter, the output must be:

```
Winter is here
```

Sample Input

```
1 Aug
15 Nov
20 Dec
21 Dec
31 Dec
0
```

Sample Output

```
142 days to winter
36 days to winter
1 days to winter
Winter is here
Winter is here
```
