



## Problem D

### Blue Moon

In the land of ACMania the calendar is somewhat different to the Gregorian calendar that we are familiar with and use. The ACManian Calendar does not have 12 months and the months have an irregular number of days in them. They do, however still have a moon and it has a regular cycle with full moons being exactly the same number of days apart from each other. When the moon is full for the second time in the month, they call that a Blue Moon. Whenever there is a Blue Moon, the ACManians have a Blue Moon Festival that sometimes incorporates a programming competition.

Because of the irregularity in the calendar's cycle, the ACManians have trouble knowing the date of the next Blue Moon Festival. They have approached you to write a program that will calculate the date of the next festival.

#### Input

The input consists of a series of scenarios for calculating the date of the next Blue Moon Festival. The first line in each scenario consists of a positive integer,  $M$ , which is the number of months in the year ( $1 \leq M \leq 1000$ ). The next line contains  $M$  positive integers that represent the number of days in each month of the calendar. Each of the  $M$  integers has a value inclusive of one (1) and five hundred (500). Consecutive integers are separated by a single space. The next line consists of a single positive integer that represents the number of days in the moon's cycle ( $1 \leq P \leq 1000$ ). The final line in the scenario gives the date of the last known full moon in  $d/m/y$  format where  $d$ ,  $m$  and  $y$  are all positive integers. The date given will be a valid date based on the number of days in each month of the calendar. The  $d$  value will be inclusive of one (1) and the number of days in the month, and the  $m$  value will be inclusive of one (1) and the number of months in the calendar. A scenario with  $M$  equals zero (0) terminates the input data.

## Output

Output consists of one line for each scenario. It will be in one of the following two formats:

The next Blue Moon Festival will be held on *d/m/y*.  
There can never be a Blue Moon Festival.

Sample Input	Output for the Sample Input
10 20 20 20 20 25 20 20 25 20 25 21 4/2/2009 5 2 3 4 5 6 7 2/3/45 0	The next Blue Moon Festival will be held on 23/10/2009. There can never be a Blue Moon Festival.