

# Dwarfs' Bedtime

Input file: *standard input*  
Output file: *standard output*  
Time limit: 2 seconds  
Memory limit: 512 mebibytes

*This is an interactive problem.*

On the edge of a forest, there is a small house. Snow White and  $n$  dwarfs live there.

It is known that each dwarf sleeps continuously for exactly one half of the day, and this half starts at the same time each day. For the other half of the day, the dwarf stays awake.

As the lady of the house, Snow White wants to know, for each dwarf, the exact minute when the dwarf goes to bed. At each of the 1440 minutes during the day, Snow White can check the beds of any dwarfs and learn whether they are asleep or awake. However, Snow White can check the bed of each dwarf no more than 50 times: otherwise, the dwarf will be outraged by the invasion of his privacy.

Please help Snow White to learn during one day, for each dwarf, the exact minute the dwarf goes to bed.

In each test, the dwarfs' schedule is fixed in advance and does not change during the interaction. In other words, the interactor in this problem is not adaptive.

## Interaction Protocol

First, read a separate line containing an integer  $n$ : how many dwarfs live in the house ( $1 \leq n \leq 100$ ).

Snow White uses a clock with 24-hour display. The interaction starts at 00:00 and ends at 23:59. To check at moment HH:MM (hours from 00 to 23, minutes from 00 to 59) whether the  $i$ -th dwarf is sleeping, print a separate line formatted as "at HH:MM check  $i$ ". In response, you will get a separate line: "asleep" if at this minute the  $i$ -th dwarf is sleeping, or "awake" if he is awake. Each next query must happen at a moment no earlier than the previous.

To output the answer, print a separate line "answer", followed by  $n$  separate lines: the times when the first, second, ...,  $n$ -th dwarf goes to sleep, formatted as HH:MM. After that, terminate your program.

If your solution performs too many checks for some dwarf or prints a wrong answer, and then terminates immediately, it will get WA (Wrong Answer). Remember to print the newline and flush the output buffer after each check and after the answer, or your solution will get IL (Idleness Limit Exceeded).

## Example

<i>standard input</i>	<i>standard output</i>
2	
asleep	at 01:40 check 1
awake	at 01:40 check 2
asleep	at 07:59 check 1
awake	at 08:00 check 1
awake	at 13:41 check 2
	answer
	20:00
	01:41

## Explanation

In the example,  $n = 2$  dwarfs live in the house.

The first dwarf sleeps from 20:00 to 07:59 inclusive. We know that because he was sleeping at 07:59, but awake at 08:00. This means the dwarf awoke at exactly 08:00. Therefore, he goes to sleep exactly 12 hours after that.

The second dwarf sleeps from 01:41 to 13:40 inclusive. We know that because he was awake both at 01:40 and at 13:41. The period from minute 13:41 to minute 01:40 inclusive spans exactly half a day. Therefore, these are the first and the last minute of being awake for him.

Please note that Snow White can check the beds of multiple dwarfs at the same minute (01:40 in the example).

The empty lines are added only for readers' convenience. In the real input and output, there are no empty lines.