5. Clock Rate

Program Name: Clock.java   Input File: clock.dat

A twenty-four hour digital clock displays the time in hours, minutes and seconds. The format of the clock time is `HH:MM:SS`. Leading 0's are used to express single digit hours, minutes or seconds with two characters. For example, 3 hours, 7 minutes and 4 seconds past midnight would be expressed as `03:07:04`. The clock time begins with midnight at `00:00:00` and runs for 24 hours ending with `23:59:59`.

Write a program that, given a starting clock time and the amount of elapsed time, prints how many times a particular digit appears. The clock time updates every second. So for example if the start time is `00:00:15` and the elapsed time is 3 seconds, the clock shows the following times:

```
00:00:15
00:00:16
00:00:17
00:00:18
```

The number of times each digit appears given the start time and the elapsed time of 3 seconds is: 0 appears 16 times, 1 appears 4 times, 2 appears 0 times, 3 appears 0 times, 4 appears 0 times, 5 appears 1 time, 6 appears 1 time, 7 appears 1 time, 8 appears 1 time, and 9 appears 0 times .

Input
- The first line will contain a single integer `n` that indicates the number of data sets that follow.
- Each data set will consist of 3 lines.
    - The first line in the data set will be the starting time in the form `HH:MM:SS`
    - The second line will be the elapsed time in the form `<Number of Hours>:MM:SS`. The elapsed time will be greater than or equal to 1 second (`0:00:01`) and less than or equal to 1000 hours (`1000:00:00`).
    - The third line will be a single integer digit `d`, where $0 \leq d \leq 9$.

Output
For each data set, print the number of times the given digit, `d`, appears on the clock, including the start time, during the given elapsed time.

Example Input File
```
5
03:59:59
0:00:01
0
12:34:56
0:00:15
1
23:59:35
0:02:01
5
23:59:59
1:01:01
9
00:00:00
24:00:00
8
```

Example Output to Screen

```
6
20
58
728
24480
```