

You have bought a car in order to drive from Waterloo to a big city. The odometer on their car is broken, so you cannot measure distance. But the speedometer and cruise control both work, so the car can maintain a constant speed which can be adjusted from time to time in response to speed limits, traffic jams, and border queues. You have a stopwatch and note the elapsed time every time the speed changes. From time to time you wonder, “how far have I come?”. To solve this problem you must write a program to run on your laptop computer in the passenger seat.

Input

Standard input contains several lines of input: Each speed change is indicated by a line specifying the elapsed time since the beginning of the trip (*hh:mm:ss*), followed by the new *speed* in km/h. Each query is indicated by a line containing the elapsed time. At the outset of the trip the car is stationary. Elapsed times are given in non-decreasing order and there is at most one speed change at any given time.

Output

For each query in standard input, you should print a line giving the time and the distance travelled, in the format below.

Sample Input

```
00:00:01 100
00:15:01
00:30:01
01:00:01 50
03:00:01
03:00:05 140
```

Sample Output

```
00:15:01 25.00 km
00:30:01 50.00 km
03:00:01 200.00 km
```