579 - Clock Hands X91615_en

The history of clocks is fascinating, but unrelated to this problem. In this problem, you are asked to find the angle between the minute hand and the hour hand on a regular analog clock. Assume that the second hand, if there were one, would be pointing straight up at the 12. Give all angles as the smallest positive angles. For example 9:00 is 90 degrees; not -90 or 270 degrees.

Input

The input is a list of times in the form 'H:M', each on their own line, with 1 <= H <= 12 and 00 <= M <= 59. The input is terminated with the time '0:00'. Note that H may be represented with 1 or 2 digits (for 1–9 or 10–12, respectively); M is always represented with 2 digits (the input times are what you typically see on a digital clock).

Output

The output displays the smallest positive angle in degrees between the hands for each time. The answer should between 0 degrees and 180 degrees for all input times. Display each angle on a line by itself in the same order as the input. The output should be rounded to the nearest 1/1000, i.e., three places after the decimal point should be printed.

Sample input 1

```
12:00
9:00
8:10
0:00
```

Sample output 1

```
0.000
90.000
175.000
```

Problem information

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