

10781 Global Positioning System

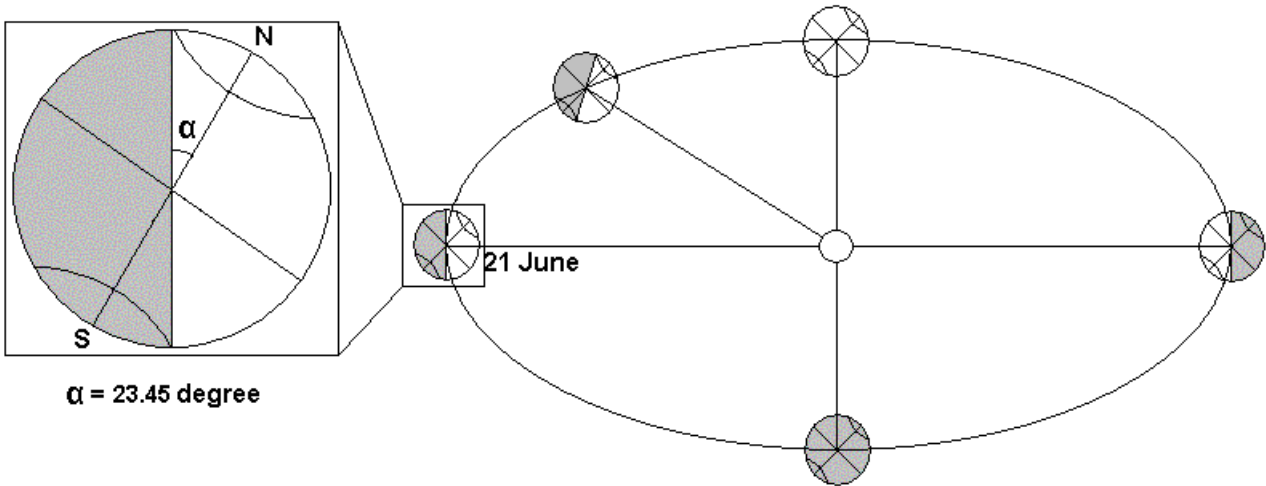
One day Mahbub lost his way in a forest. He had no GPS receiver. But he had a watch which gives time in GMT and he knew the date. With the watch he note the time of sunrise and sunset and calculated his approximate position on the earth.

The word solstice is a corruption of 2 Latin words that mean sun and stand. The days when this occurs are known as the Summer Solstice and the Winter Solstice. Very basically the Earth revolves round the Sun, also the Earth's axis is tilted relative to the Sun at 23.45° . The relative tilt of the Earth's varies to the supposed axis of the Sun as we progress through the year. With the respective movements of Sun and Earth at these significant times during the year the northern and southern hemispheres are nearer the Sun, or the Sun is further north or south. In the northern hemisphere, when the Sun is furthest north at the time of the Summer Solstice the Sun is overhead at latitude 23.45° north, also known as the Tropic of Cancer. Vernal and Autumnal Equinoxes are in fact the point when the Sun passes over the Equator.

For calculation Mahbub assumes the following:

- The earth is a perfect sphere of radius 6378 km.
- The earth rounds the sun in a perfect circular path in 365 days (neglect leap years) with a constant speed.
- The earth rounds around its own axis in 24 hours.
- Earth's axis is tilted relative to the Sun at 23.45° .
- 21st June 12 pm GMT is the Summer Solstice.
- $\pi = 2 * \arccos(0)$

NB: There are days at north and south pole, at which the sun shines the whole day, or it doesn't shine at all. There will be no such input.



Input

Input is consist of several test cases. Each test case contains date (dd/mm) and time ($hh:mm:ss$) of sunrise in GMT, time ($hh:mm:ss$) of sunset in GMT. Input will be terminated by end of file.

Output

For each test case print the latitude and the longitude (*ddd:mm:ss NSEW*). Error of at most ± 1 minute is acceptable. When it is impossible to calculate either latitude or longitude print the line 'Lost My Way'. Each test case should be separated by new line.

Sample Input

```
01/01 06:00:00 18:00:00
31/12 10:00:00 22:00:00
15/12 00:33:00 11:14:00
20/09 12:00:00 00:00:00
```

Sample Output

```
000:00:00 N 000:00:00 E
000:00:00 N 060:00:00 W
021:40:48 N 091:37:30 E
Lost My Way
```