Name: Answer Key

ID number:

Ast 105 - Quiz 1
September 21, 2006
Due Date: October 3, 2006

This quiz is designed to help you practice calculations for Practical Exercise 1. Please work independently on this exercise.

1) On a particular day, the sun rises at 6:00am and sets at 5:00pm. Calculate the length of the day and the astronomical noon using these numbers.

a) length of day
\[
\begin{align*}
5:00pm &= 17:00 = 17.0 \text{ hr} \\
6:00am &= 6:00 = 6.0 \text{ hr}
\end{align*}
\]
\[
17.0 - 6.0 = 11.0 \text{ hr} = 11 \text{ hr} + (0 \times 60) \text{ min} = 11 \text{ hr } 00 \text{ min}
\]

b) astronomical noon
\[
11.0/2 = 5.5 \text{ hr}
\]
\[
5.0 + 5.5 = 11.5 \text{ hr} = 11 \text{ hr} + (0.5 \times 60) \text{ min} = 11 \text{ hr } 30 \text{ min}
\]

2) On a particular day, the sun rises at 6:46am and sets at 5:25pm. Calculate the length of the day and the astronomical noon using these numbers.

a) length of day
\[
\begin{align*}
5:25pm &= 17:25 \text{ min} = 17 \text{ hr} + 25/60 = 17.416 \text{ hr} \\
6:46am &= 6 \text{ hr} 46 \text{ min} = 6 \text{ hr} + 46/60 = 6.76 \text{ hr}
\end{align*}
\]
\[
17.416 - 6.76 = 10.65 = 10 \text{ hr} + (0.65 \times 60) \text{ min} = 10 \text{ hr } 39 \text{ min}
\]

b) astronomical noon
\[
10.65/2 = 5.325
\]
\[
5.0 + 5.325 = 12.092 = 12 \text{ hr} + (0.92 \times 60) \text{ min} = 12 \text{ hr } 55 \text{ min}
\]

3) On a particular day, the sun rises at 6:36am and sets at 5:47pm. Calculate the length of the day and the astronomical noon using these numbers.

a) length of day
\[
\begin{align*}
5:47pm &= 17:47 \text{ min} = 17 \text{ hr} + 47/60 = 17.783 \text{ hr} \\
6:36am &= 6 \text{ hr} 36 \text{ min} = 6 \text{ hr} + 36/60 = 6.6 \text{ hr}
\end{align*}
\]
\[
17.783 - 6.6 = 11.183 = 11 \text{ hr} + (0.183 \times 60) \text{ min} = 11 \text{ hr } 11 \text{ min}
\]

b) astronomical noon
\[
11.183/2 = 5.592
\]
\[
5.0 + 5.592 = 12.192 = 12 \text{ hr} + (0.192 \times 60) \text{ min} = 12 \text{ hr } 11 \text{ min}
\]