

Chapter 2 Exercises Part II

due: Wednesday, October 02, 2019 by (12:15 MDT)

Please do assignment on separate 8.5 x 11 inch sheets of paper, & show all your work/calculations, etc. thanks

2.4 b. Calculate the "Sunrise and Sunset Times" and "Day Length" for the: Summer and: Winter Solstices at: +45 degrees N LAT and: 35 degrees LON.

a. find: **longitude correction** from equation: 2.3 or: $-4 (SL - LL)$ (answer is in: minutes)

b. use table: 2.1 to find: **day number: "N"**

c. find: **"B"** using equation: 2.2: $B = (N - 81) \frac{360}{364}$

d. plug in value of: **"B"** into the equation of time: 2.1: pg. 52

e. find: **declination** from equation: 2.5 $\delta = 23.45 \sin \left[\frac{360}{365} (284 + N) \right]$

f. use equation: 2.17 pg. 61 to find: **day length**, use *declination* from item: **e**, and use: **45** degrees for: **(L)**

g. Sunrise time *Summer Solstice*: 12:00 - 7:43 + 0:02 - 0:20 =

Sunset time *Summer Solstice*: 12:00 + 7:43 + 0:02 - 0:20 =

h. Sunrise time *Winter Solstice*: 12:00 - 4:17 - 0:01 - 0:20 =

Sunset time *Winter Solstice*: 12:00 + 4:17 - 0:01 - 0:20 =

2.8 What is the solar time in Denver, Colorado, on June 10 at 10:00 a.m. Mountain Standard Time (MST)?

a. find the: **standard meridian** for: 105 degrees

b. find the: **longitude correction** from equation: 2.3

c. find day number: **"N"** from table: 2.1

d. find **"B"** from equation: 2.2

e. find **ET** with equation: 2.1

f. find: **AST** = LST + ET from equation: 2.3