

NORTHERN ILLINOIS UNIVERSITY

PHYSICS DEPARTMENT

Physics 162 – Astronomy

Fall 2024

Problem Set #7

Problem Set Due: Thurs., Oct. 31, 2024 (midnight)

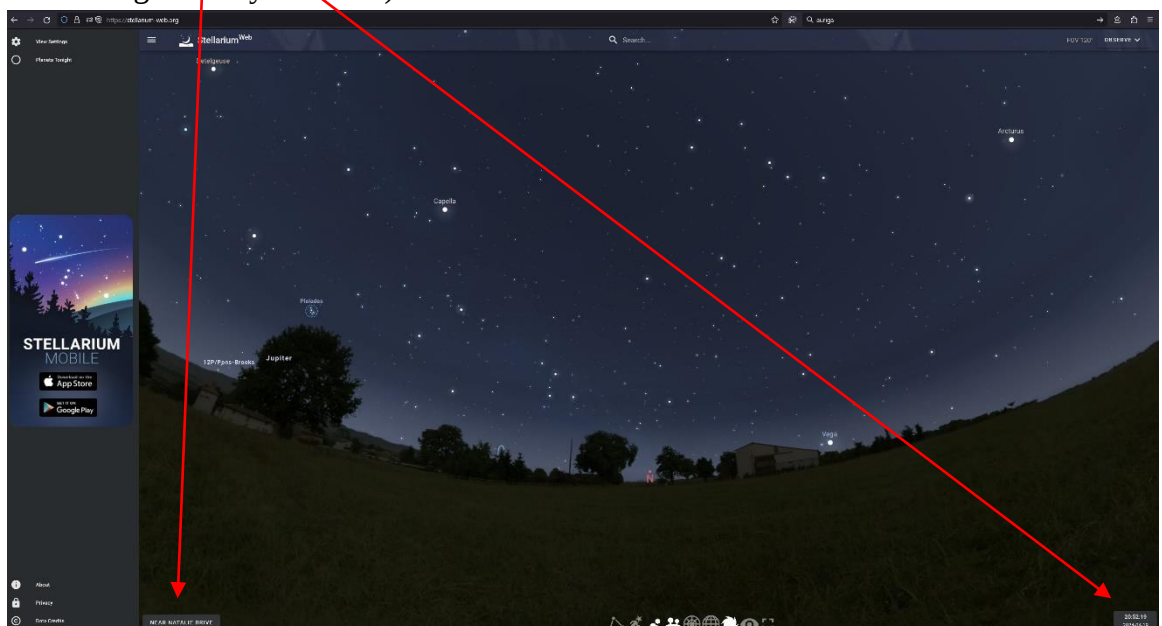
Read OpenStax: Chapter **10**

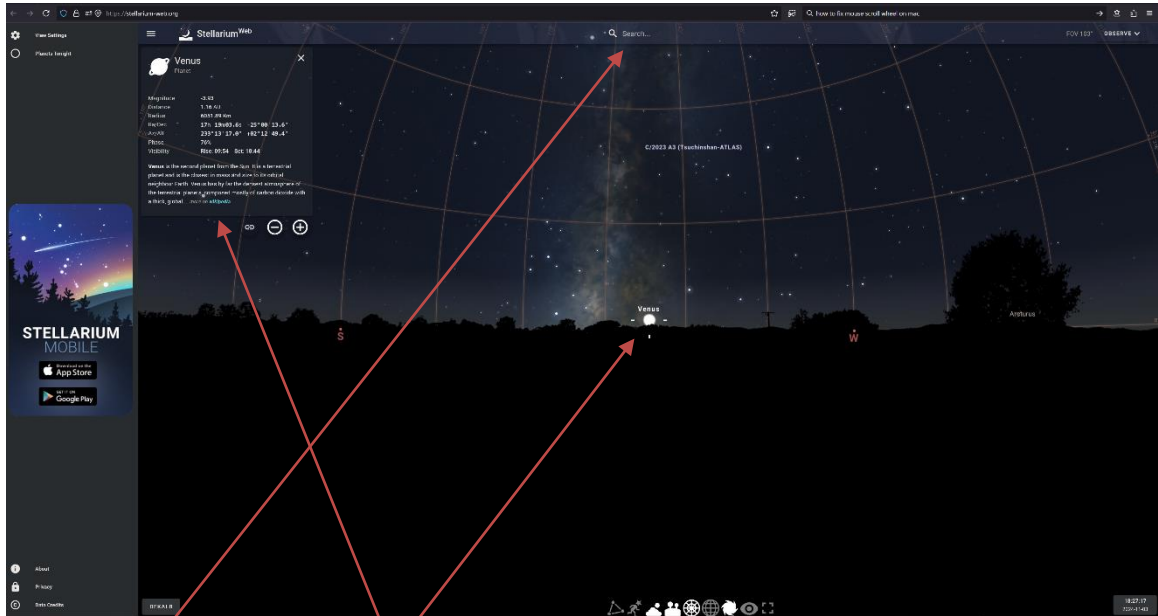
Show explicitly all your work for full credit.

- | | |
|------------------------|------------------|
| 1. Expert TA: 10.1.2 | multiple choice |
| 2. Expert TA: 10.1.3 | multiple choice |
| 3. Expert TA: 101.5 | multiple choice |
| 4. Expert TA: 10.1.9 | multiple choice |
| 5. Expert TA: 10.1.11 | multiple choice |
| 6. Expert TA: 10.1.29 | multiple choice |
| 7. Expert TA: 10.1.32 | multiple choice |
| 8. Expert TA: 10.1.38 | multiple choice |
| 9. Expert TA: 10.2.4 | show calculation |
| 10. Expert TA: 10.3.2 | write in order |
| 11. Expert TA: 10.3.3 | write in order |
| 12. Expert TA: 10.6.1 | true/false |
| 13. Expert TA: 10.6.11 | true/false |
| 14. Expert TA: 10.6.28 | true/false |

15. Go to the Stellarium Webpage: <https://stellarium-web.org/>

Click on the **tab** in the bottom left corner and select your location as DeKalb, IL. The **date** in the bottom right corner should be today in the evening (if you click on it, you can change the day and time).





(a) Do a **search** for the planet **Venus** using the search box at the top of the screen. Insert **today's date** using the tab in the bottom right-hand corner. If Venus slips below the horizon, you can change the time (minutes) so that Venus appears above the horizon.

(b) Turn on the **Azimuthal Grid** by clicking on it. You should see a grid like in the picture above. Click on Venus if the **info box** on azimuth and altitude (Az/Alt) disappears. Record the azimuth and altitude coordinates of Venus as well as the date and time. Take a snapshot of your screen using the **snipping tool** in Windows or the Mac and insert this in your homework. Verify that the coordinates are correct by magnifying the screen with your mouse scroll wheel

Az = 234°

Az = 235°

Az = 236°



Coordinates of Venus on 2024-11-03 at 18:31:09 are Az/Alt = (233° 53′ , 1° 38′). The other units (seconds) change too quickly to record by hand.

(c) Do a *search* for the planet *Mars*, take a snapshot of your screen with a *snipping tool*, and record the azimuth and altitude coordinates of Mars as well as the date and time.

(d) Go outside on a clear evening night to see if you can see either Venus or Mars. Is Mars visible in the *evening sky* at this time of the year? When is Mars visible in the *nighttime sky* at this time of the year?