NORTHERN ILLINOIS UNIVERSITY

PHYSICS DEPARTMENT

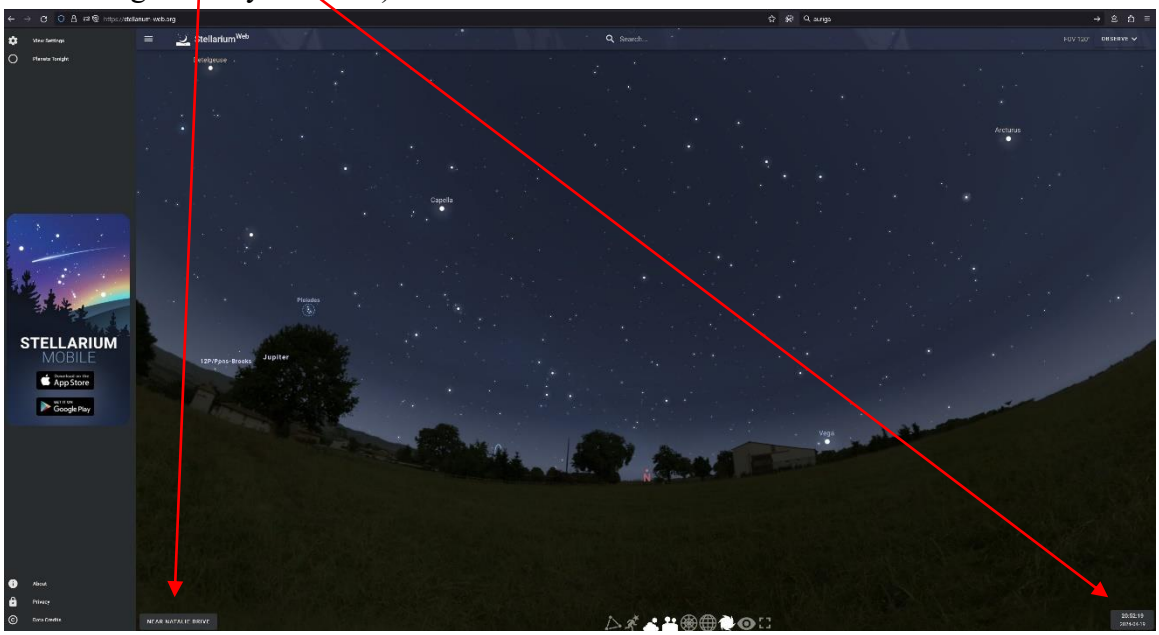
Physics 162 – Introductory Astronomy Fall 2025

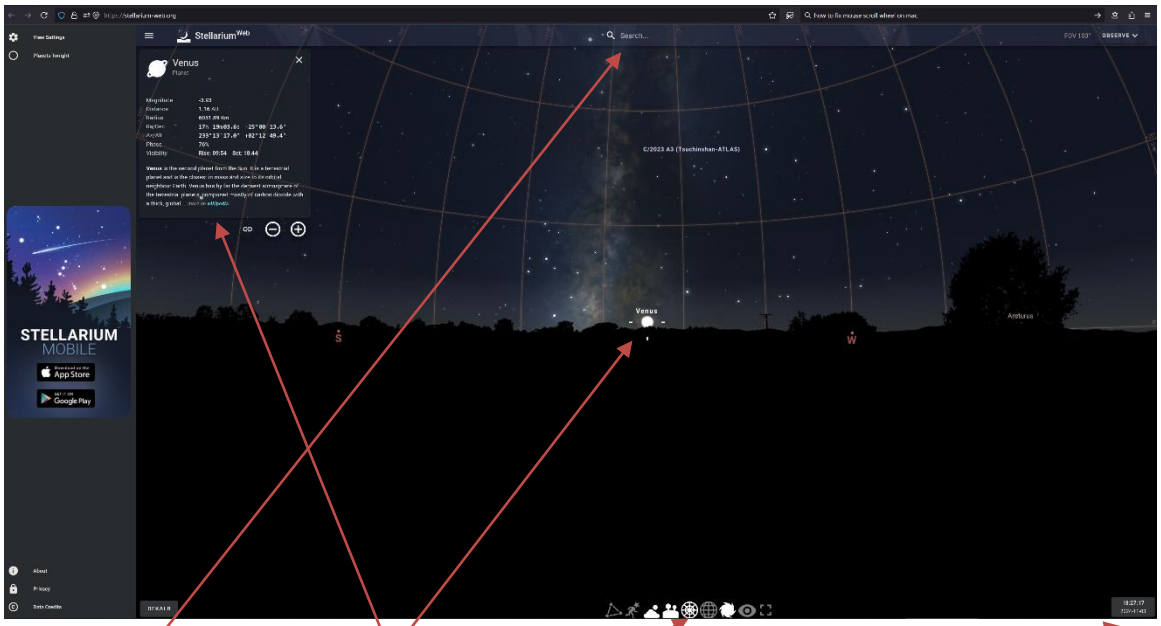
Problem Set #7

Problem Set Due: Fri., Oct. 31, 2025
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).

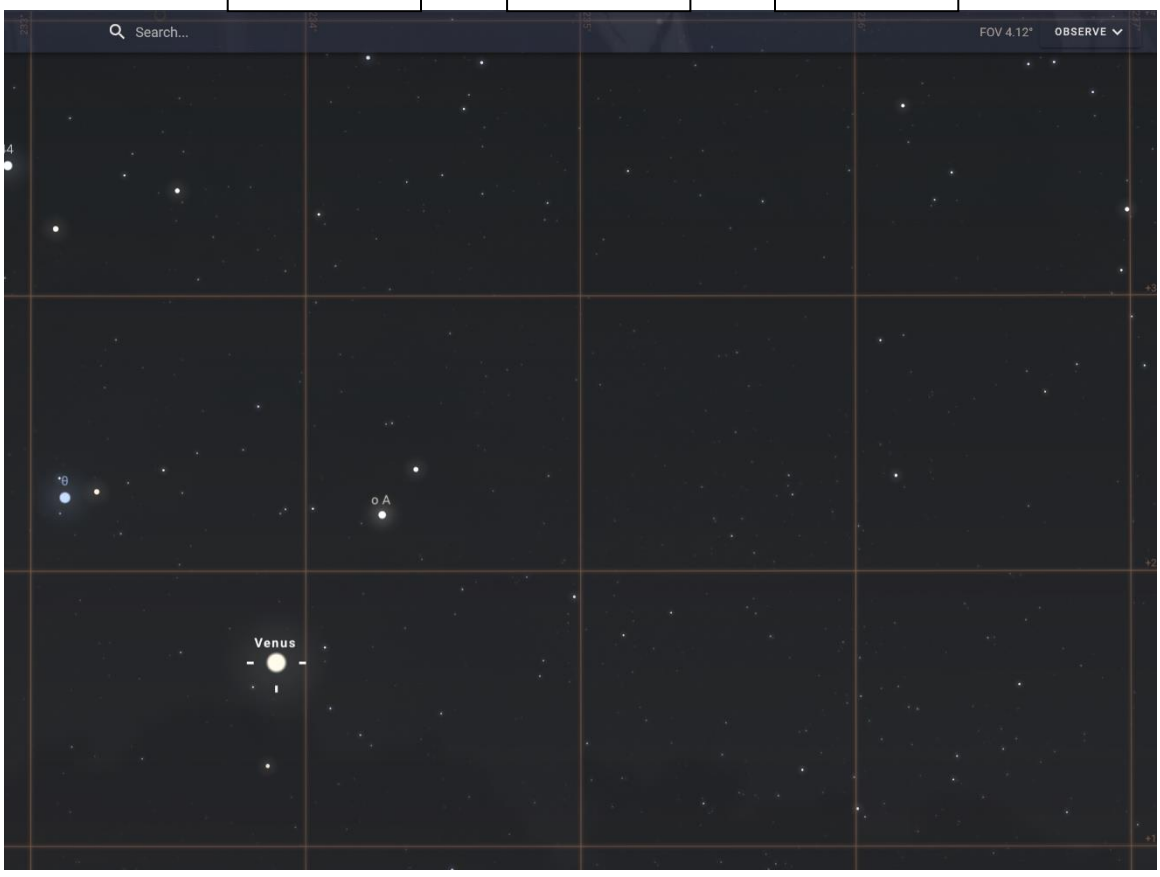




Do a *search* for the planet *Venus* using the search box at the top of the screen. Insert *today's date* using the tab in the bottom right-hand corner. If Venus slips below the horizon, you can change the time (minutes) so that Venus appears above the horizon.

(a) 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°



Alt = 3°

Alt = 2°

Alt = 1°

The coordinates of Venus on 2024-11-03 at 18:31:09 was Az/Alt = (233° 53′ , 1° 38′). The other units (seconds) change too quickly to record by hand. (Make certain you use today's date, not last year's date, when you get the coordinates.)

(b) 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.

(c) 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?