

Assignment 3

Please type your responses into a word document, and submit that on UNM Learn. Be sure to number your responses 1, 2(a), etc. so I know which question you're answering, and **show your work** for all questions. If you get stuck, post a question on the forums. Chances are you're not the only one!

1. (15 points) *Where are you on Earth in each of the following?*
 - (a) *The stars rise and set perpendicular to the horizon.*
 - (b) *The stars circle the sky parallel to the horizon.*
 - (c) *The celestial equator passes through the zenith.*
 - (d) *In the course of a year, all stars are visible.*
 - (e) *The Sun rises on March 21 and doesn't set until September 21 (ideally).*

2. (9 points) *What is the phase of the Moon if it*
 - (a) *rises at 3:00 pm?*
 - (b) *is highest in the sky at sunrise?*
 - (c) *sets at 10:00 am?*

3. (10 points) *Your pupil is typically 3 mm wide, but can expand to 7 mm in darkness. How many times more light can it gather in darkness?*

4. (15 points) *People are often bothered in discovering that reflecting telescopes have a reflecting mirror.*
 - (a) (10 points) *In a Cassegrain focus, what fraction of light do you lose if the primary mirror is 8 m in diameter and the secondary 1 m?*
 - (b) *Explain why this might be worth the reflecting telescope design.*

5. (10 points) *Ask and answer one question in your group discussion forum, and copy/paste or screenshot both posts below. You will be working as a group to complete Project 1, which will be posted this weekend (click the weekly summary link ("Week 3" link) this weekend for more details on Project 1).*