

Astronomy 115-06, Fall 2007
Homework #5
Due Wednesday, December 12, 2007

SHOW ALL YOUR WORK TO GET FULL CREDIT!

Chapter 15 (pg. 344)

Review Question #1: How does the darkness of the night sky tell you something important about the universe?

Chapter 17 (pg. 405)

Review Question #5: Why doesn't the Earth have as many craters as its moon or Venus?

Problem #8: The smallest feature visible through an Earth-based telescope has an angular diameter of about 1 second of arc. If a crater on Mars is just visible when Mars is nearest to Earth, what is its linear diameter? (Hint: See Reasoning with Numbers 3-1.)

Chapter 18 (pg. 436)

Review Question #11: What are the seasons on Uranus like?

Review Question #14: Why do astronomers conclude that Pluto is not a planet? What is it?

Problem #4: If you observe light reflected from Saturn's rings, you should see a redshift at one edge of the rings and a blueshift at the other edge. If you observe a spectral line and see a difference in wavelength of 0.056 nm, and the unshifted wavelength (observed in the laboratory) is 500 nm, what is the orbital velocity of particles at the outer edge of the rings? (Hint: See Reasoning with Numbers 6-2.)

Problem #8: If Pluto has a surface temperature of 50°K, at what wavelength will it radiate most of its energy? (Hint: See Reasoning with Numbers 6-1.)

Problem #9: How long did it take radio commands to travel from Earth to Voyager 2 as it passed Neptune?