

Friday Jan. 17

If you don't have them yet, pick up syllabus and "Memo to Undergraduate Astronomy Students"

If you haven't handed in the "Introductory Astronomy Survey", please do.

Syllabus and class notes are at: www.as.utexas.edu
go to courses, AST301 – Introduction to Astronomy – Lacy

Reading for next week: chapter 3 (1&2 for this week)

We will have a quiz on the reading on Wednesday

Pick up the homework. It is due next Friday.

Angles, Sizes, and Distances

Angular size of an object increases as its size increases and decreases as its distance increases

Can be written as a formula:

angular size = $57^\circ \times \text{diameter} / \text{distance}$, or

$$\theta = 57^\circ \times D/d$$

But often it is easier to just say:

angular size is proportional to diameter, or $\theta \propto D$

and is inversely proportional to distance, or $\theta \propto 1/d$

Means if the distance gets bigger, the angular size gets smaller by the same factor

Quiz

1. The diameter of Venus is about $1/100$ the diameter of the Sun. On average the distance to Venus is about the same as the distance to the Sun. How does the angular diameter of Venus compare to the angular diameter of the Sun?
 - A. about the same
 - B. 100 times smaller
 - C. 100 times larger

Quiz

1. The diameter of Venus is about $1/100$ the diameter of the Sun. On average the distance to Venus is about the same as the distance to the Sun. How does the angular diameter of Venus compare to the angular diameter of the Sun?

- A. about the same
- B. 100 times smaller
- C. 100 times larger

Quiz

2. The diameter of Jupiter is about $1/10$ the diameter of the Sun. On average Jupiter is about 5 times farther from us than the Sun is. How does the angular size of Jupiter compare to the angular size of the Sun? Jupiter is ...
- A. about 5 times smaller
 - B. about 10 times smaller
 - C. about 15 times smaller
 - D. about 50 times smaller

Quiz

2. The diameter of Jupiter is about $1/10$ the diameter of the Sun. On average Jupiter is about 5 times farther from us than the Sun is. How does the angular size of Jupiter compare to the angular size of the Sun? Jupiter is ...

- A. about 5 times smaller
- B. about 10 times smaller
- C. about 15 times smaller
- D. about 50 times smaller

Motions in the sky during a night

Install “The Sky” on your computer

View: Filters... Faintest: 4.0

Deselect galaxies

View: Status Bar check date and time

Data: Site Information: Location: Austin

Data: Site Information: Date and Time: set as desired

General pattern:

All objects rise in east, follow an arc across sky, set in west

Although some are farther south and some farther north

Why? What causes this motion of objects across the sky?

Quiz

3. If you were standing on the pack ice at the north pole in the wintertime and watched the sky for 24 hours, you would see Polaris ..
- A. remain directly overhead
 - B. circle the horizon
 - C. rise in the east and set in the west, passing directly overhead

Quiz

4. If you were standing at the north pole and watched the sky for 24 hours, you would see the big dipper ...
- A. remain stationary in the sky
 - B. circle around the sky
 - C. rise in the east and set in the west, passing directly overhead
 - D. rise in the east and set in the west, passing south of overhead

Assignments for Wednesday

Read Chapter 2

Be prepared for a quiz on the reading and on topics covered this week.

Get started on the homework, especially observing the Moon.

Watch the Moon for the next few days.

Note how the time it rises changes from day to day, and try to see if the position on the horizon where it rises changes from day to day.

Topics for this week

To order-of-magnitude accuracy, know the relative sizes of Earth, Sun, Solar System, Milky Way Galaxy, Universe

Understand the meaning of scientific notation and how to add, subtract, multiply, and divide numbers in scientific notation

Know how the angular size of an object is related to its size and distance

Know what the magnitudes of stars tell you about their relative brightnesses

Describe the apparent motions of stars across the sky during a night as seen from various locations on Earth