

- Homework review
- The spherical law of sines
- The celestial sphere
- Celestial pole, cardinal points, zenith, nadir, and all that stuff
- Altitude and azimuth; zenith distance
- Declination and hour angle
- Culmination (upper/lower), depression, local meridian, object meridian
- Rise/set/visibility
- Circumpolar stars
- Try it yourself:
  - When will the minute hand and the hour hand overlap again after mid-day?
  - How long does 1 sidereal Earth day last?
  - Observing from Villanova, a star culminates at 19:30. At that time it is  $33^{\circ}57'23''$  above the horizon. When will that star set? At what azimuth?
  - Pick a star that is visible from Villanova. Look up its equatorial coordinates. How long is the star above horizon? What is its maximal altitude? In what direction? At what azimuth does it rise, and at what azimuth does it set?