

# Astronomy 1143 Quiz 1 Review

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## What is Science?

1. Explain the difference between astronomy and astrology.
2. What number is the metric system based around? What are some of the more widely-used prefixes?
3. What special attribute of certain constellations puts them in the zodiac?

## Observational Astronomy: The Night Sky

1. What is the ecliptic plane?
2. Why is the ecliptic tilted with respect to the celestial equator? How big is this tilt in degrees?
3. Where does the ecliptic plane intersect the celestial equator?
4. What are the primary coordinates for finding a place on Earth? How about the celestial sphere?
5. In what constellation would you find Polaris?
6. What is the angular size of an object? What is it for the Moon? The Sun? Which is actually bigger? How do you reconcile this?
7. Why does the Moon have phases?
8. Why do we not have an eclipse every month?
9. How big is an arcminute? An arcsecond?
10. What is stellar parallax? Why is it useful? Does a nearby star have a larger or smaller parallax than one that is farther away?
11. Why couldn't the Greeks see parallax?
12. What is a parsec? How many light years are in a parsec?
13. How close is the nearest star to the Sun? What does this say about space?

## The Heliocentric Model

1. In simple terms, what are the geocentric and heliocentric models?
2. Who was the first major proponent of the heliocentric model? What were the key facets of his model?
3. Explain the main observational problem that Mars presented for the Geocentric and early Heliocentric models.
4. What did Ptolemy add to the geocentric model explain this problem?
5. Who correctly solved this problem? How? Using whose data?
6. Which of Galileo's observations supported the heliocentric model?
7. Define: superior planet, inferior planet, conjunction, opposition, quadrature, perihelion, aphelion, and eccentricity.
8. Venus is on the opposite side of the Sun compared to the Earth. What is the name for this configuration of an inferior planet?
9. What is a synodic period of a planet? Sidereal period?
10. Are planetary orbits perfectly circular as proposed by Copernicus?
11. Explain Kepler's 3 Laws.
12. What is the proportionality between period and semimajor axis in Kepler's 3rd Law?
13. What is the semimajor axis of a comet whose period is 8 years?

## Newton and Motion

1. What are Newton's 3 Laws of Motion?
2. What is inertia?
3. What formula did Newton write down for the strength of the force of gravity?
4. If I drop a bowling ball and a pencil, which will hit the ground first? Why?

## Einstein and Relativity

1. What are the two main concepts of relativity?
2. What does Einstein's special theory of relativity state?
3. What happens when light passes by a massive object?
4. What happens to your mass as you approach the speed of light?