

# Astronomy 301 Introduction to Astronomy

## STUDY GUIDE FOR QUIZ 1

The Quiz format is identical to that of HW1 and HW2.

Part A consists of 25 short questions and Part B of 6 questions. You are asked to attempt all 25 questions in Part A and 1 of the Part B questions.

---

### Part A

What is the Local Group?

What is the astronomical unit?

How are the angles – degree, minute of arc, and second of arc – related?

What and where is the celestial equator?

How do stars appear to move across the sky?

Why are lunar eclipses more common than total solar eclipses?

How are lunar phases related to the positions of the Moon and Sun?

How are the phases of Mars related to its position with respect to the Earth?

What are Kepler's Laws?

Can you manipulate  $P^2 = a^3$ ?

Do you understand Newton's law of gravitation:

$$F = G \frac{M_1 M_2}{R_{12}^2} ?$$

And his law of motion:  $F=ma$ ?

What are the principal regions of the electromagnetic spectrum?

Is our atmosphere fully transparent to the entire spectrum?

What are the laws of refraction? Reflection?

How does a telescope's light gathering power depend on the diameter of the primary mirror?

# Astronomy 301 Introduction to Astronomy

What is meant by resolving power?

What do sound, water and electromagnetic waves have in common? In what ways do they differ?

---

## Part B

How do stars move across the sky?

Why are some constellations seasonal (i.e., only visible at night in certain months) and not others?

How did Copernicus determine the distance of Venus from the Sun?

What phases can Venus show?

How are Sun, Earth and Moon positioned during an eclipse of the Sun, and of Moon?

Why are solar eclipses rarely observed but lunar eclipses frequently so?

What experiment led Rutherford to a new model for atoms?

Why are large telescopes reflectors?

What limits a telescope's resolving power?

What advantages are tapped by putting a telescope outside the Earth's atmosphere?

What led Newton to the idea of the force called gravitation?

Why was the discovery of Neptune a vindication of gravitation?

What about Mercury's orbital motion was not consistent with Newton's view of gravitation?