Astro 10, Spring 2006, Jeopardy Review 2[1]

Kepler's Laws and Newton's Laws

100. The Sun is located at one of these points in a planet's elliptical orbit. A focus
200. All of Kepler's Laws can be derived from these. Newton's Laws of Motion
300. The Earth is moving fastest in its orbit during this month. December
400. A planet that orbits the Sun once every eight years is on average this far from the Sun. 4 AU
500. A planet around an 8 solar mass star with a semi-major axis of 2AU has this period. 1 year

Tidal Forces

100. High tides on Earth occur this many times per day. Twice
200. Low tides are also called this. Neap Tides
300. All planetary rings lie within this limit. The Roche Limit
400. Orbital resonances with this prevented asteroids in the asteroid belt from coalescing into a planet early in the history of the solar system. Jupiter
500. Even though you are currently inside the Earth's Roche Limit, you are not ripped apart because of this. You are too small to have a large enough difference in gravity across your body and you are held together by stronger forces than gravity.

Planetary Atmospheres

100. If the Earth's atmosphere were transparent to infrared light and opaque to visible light, the Earth's surface temperature would be this (compared to the present Earth). Colder
200. These are two greenhouse gases found in the Earth's atmosphere. water vapor, carbon dioxide, methane, nitrous oxide, and aerosols (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride)
300. Even though these are the two most abundant elements in the universe, there is barely any in the Earth's atmosphere. Hydrogen and helium
400. This is the only moon in the solar system known to have a substantial atmosphere. Titan
500. This physical process is responsible for the blue sky and red sunsets. (Rayleigh) scattering

The Outer Solar System

100. Cometary tails point in this direction. Away from the sun
200. Scientists have strong evidence that liquid water once flowed on the surface of this planet. Mars
300. Most scientists consider this so-called planet to be part of the Kuiper Belt. Pluto
400. This is the most volcanic body in the solar system. Io
500. If one fourth of the normal amount of a radioactive compound with a half-life of 2 billion years is found in a meteor, then this must be the age of the meteor. 4 billion years

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[1] Thanks to Holly for some of the questions.

Planet Formation and Evolution

100. The average density of the gas giant planets compared to the terrestrial planets is this. Less

200. The presence of the ecliptic plane suggests the solar system formed from this shape. Disk

300. All planets orbit the Sun in the same direction due to this physical law. Conservation of angular momentum

400. The theory that the Earth's crust is broken into a few large chunks that are floating around on the mantle and rubbing against each other is called this. Plate tectonics

500. This is the name of the process that caused large amounts of iron to sink to the Earth's center. Differentiation

Final Jeopardy

Small Bodies in the Solar System

This is how meteor showers are created.

The Earth's orbit intersects a comet's orbit where the comet leaves behind a trail of particles that slam into the Earth's atmosphere and appear as a huge number of meteors annually from one distinct spot in the sky.

This is the difference between a meteor and a meteorite (and is not "3 letter").

A meteor is the flash of light we see as a particle from space slams into Earth's atmosphere. A meteorite is a particle from space that survives the plunge through the atmosphere and lands on the Earth's surface.