

**Answer all questions in the space provided. If you have any questions, raise your hand. 100 points possible. No calculators or electronic devices of any type.**

**1 (4 pts)** What type of meteorite is most likely to be found on the surface of an asteroid that has never been heated?

**2 (4 pts)** Jupiter takes about 12 years to go around the Sun. How long would it take for an asteroid in a 2:1 resonance with Jupiter to go around the Sun?

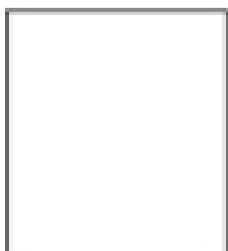
**3 (8 pts)** Explain why there may not have been life on Earth if it rotated on its axis at the same rate as Venus (1 rotation = 243 days).



**4 (4 pts)** What type of meteorite is most likely to be found in the core of a very small (< 100 m) asteroid?

**5 (4 pts)** Describe why the tidal force of Jupiter distorts the shape of Io.

**6 (8 pts)** Explain why there is a close relationship between the composition of a world's surface and the composition of its atmosphere.



**7 (4 pts)** What type of meteorite is most likely to be found on the surface of an asteroid that was volcanically active?

**8 (4 pts)** Describe how the visual appearance of the clouds Jupiter would change if you were to slow down Jupiter's rotation rate.

**9 (8 pts)** Explain why there is so much more material at 5 AU to build Jupiter that there is at 1 AU where the Earth formed.

