

Answer all questions in the space provided. If you have any questions raise your hand. 100 points possible.

1 (5 pts) You have discovered an airless planet orbiting between the Sun and Mercury. You measure its uncompressed density to be $\rho = 6 \text{ gm/cm}^3$ and its albedo to be $A = 0.12$. Describe the approximate composition of this planet.

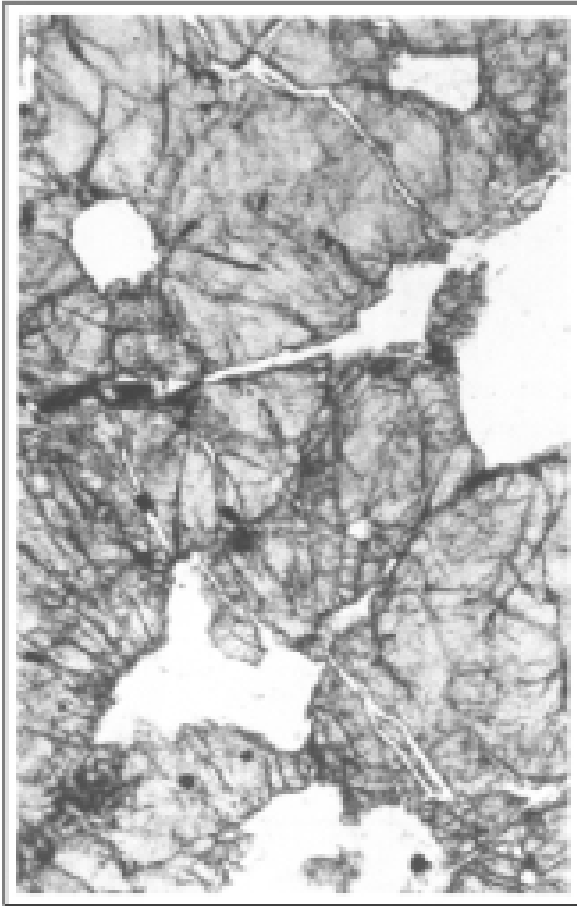
2 (10 pts) A region on Mercury has 100 impact craters per square kilometer. A region on Venus has 50 impact craters per square kilometer. How do the relative ages of these two surfaces compare?

3 (5 pts) If you wanted to find the absolute ages of these two surfaces how would you do that?

4 (5 pts) If you were to triple the size of the Earth (increase its radius by a factor of three) and triple the mass of the Earth, how much would it change the gravity on the Earth (how much would your weight change)? [show your work]

6 (3 pts) What is the property of CO_2 and H_2O that makes them greenhouse gases? [Because they cause the greenhouse effect is not a good answer.]

7 (10 pts) Explain how the greenhouse effect works. Use the Earth's atmosphere as an example.



8 (4 pts) This is an image of a thin-section of a Lunar rock we saw in class. If this were a color image you would notice that the material appears grey to slightly yellow. What type of rock is this? (check one)

- Mare Basalt
- Impact Breccia
- Lunar Regolith
- Plutonic Rock
- Orange Soil

9 (4 pts) What are the characteristics of the thin-section that you used to answer the above question?

10 (4 pts) How was the rock that this thin-section came from formed?

11 (4 pts) Where on the Moon would you expect to find this rock?

12 (4 pts) Why would you expect to find this rock there?