

OpenStax Astronomy, Ch.7: WS Problems (Apr-2021)

Review Questions

1. What is the difference between a differentiated body and an undifferentiated body, and how might that influence a body's ability to retain heat for the age of the solar system?
2. What does a planet need in order to retain an atmosphere? How does an atmosphere affect the surface of a planet and the ability of life to exist?
3. Which type of planets have the most moons? Where did these moons likely originate?
4. What is the difference between a meteor and a meteorite?
5. Explain our ideas about why the terrestrial planets are rocky and have less gas than the giant planets.
6. Do all planetary systems look the same as our own?
7. What is comparative planetology and why is it useful to astronomers?
8. What changed in our understanding of the Moon and Moon-Earth system as a result of humans landing on the Moon's surface?
9. If Earth was to be hit by an extraterrestrial object, where in the solar system could it come from and how would we know its source region?
10. List some reasons that the study of the planets has progressed more in the past few decades than any other branch of astronomy.
11. What characteristics do the worlds in our solar system have in common that lead astronomers to believe that they all formed from the same "mother cloud" (solar nebula)?
12. How do terrestrial and giant planets differ? List as many ways as you can think of.
13. Why are there so many craters on the Moon and so few on Earth?
14. How do asteroids and comets differ?
15. How and why is Earth's Moon different from the larger moons of the giant planets?
16. Where would you look for some "original" planetesimals left over from the formation of our solar system?
17. What can we learn about the formation of our solar system by studying other stars? Explain.
18. Explain why the planet Venus is differentiated, but asteroid Fraknoi, a very boring and small member of the asteroid belt, is not.
19. Would you expect as many impact craters per unit area on the surface of Venus as on the surface of Mars? Why or why not?