

1. Which terrestrial planets have the greatest radius? (That is, which is largest?)

- A) Mercury
- B) Venus
- C) Earth
- D) Mars

2. Which terrestrial planet is least dense?

- A) Mercury
- B) Venus
- C) Earth
- D) Mars

3. Does Mercury have an atmosphere? Why or why not?

- A) Yes. Mercury's has a substantial atmosphere of solar hydrogen and helium.
- B) Yes, but it is only one-tenth the atmosphere of Venus.
- C) No. It has only traces of gases temporarily captured from space. Mercury's gravitational force is too weak to retain an atmosphere in its hot environment.
- D) Astronomers have not been able to tell so far.

4. What is the surface of Mercury like?

- A) Rocky, with craters and scarps.
- B) Rocky, with volcanoes and old ocean basins.
- C) Gaseous.
- D) Mostly rock, but covered about 40% by liquid methane.

5. What does Mercury most resemble in size and appearance?

- A) Venus
- B) Mars
- C) the Moon
- D) Earth

6. Mercury's average density is about 50% greater than the Moon's, even though the two bodies have similar radii. This suggests that Mercury('s)

- A) interior is much richer in iron than the Moon's.
- B) contains proportionately far more rock than the Moon.
- C) greater mass has prevented its gravitational attraction from compressing it as much as the Moon is.
- D) must have a liquid water core.

7. **Despite its thick cloud cover, astronomers can observe the surface of Venus with**
- A) visible light.
 - B) ultraviolet light.
 - C) infrared light.
 - D) radar.
8. **What is the dominant gas in Venus's atmosphere?**
- A) Carbon dioxide.
 - B) Water vapor.
 - C) Methane.
 - D) Nitrogen.
9. **What are the clouds of Venus mainly composed of?**
- A) Methane.
 - B) Water vapor.
 - C) Sulfuric acid droplets.
 - D) Carbon dioxide.
10. **Why is Venus's surface hotter than Mercury's?**
- A) Venus rotates more slowly, so it "bakes" more in the Sun's heat.
 - B) Clouds in Mercury's atmosphere reflect sunlight back into space and keep its surface cool.
 - C) Carbon dioxide in Venus's atmosphere traps heat radiating from its surface, thereby making it warmer.
 - D) Venus is closer to the sun.
11. **Which group contains only features that can be seen on the surface of Mars?**
- A) canyons, oceans, volcanoes, polar caps
 - B) craters, canyons, polar caps, volcanoes
 - C) polar caps, oceans, dried up river beds
 - D) all of the above
12. **The Martian polar caps are composed of frozen**
- A) water and carbon dioxide.
 - B) water and methane.
 - C) methane and carbon dioxide.
 - D) water and sulfuric acid.
13. **Pluto's orbit crosses the orbit of another outer planet? Which is it?**
- A) Jupiter
 - B) Saturn
 - C) Uranus.
 - D) Neptune

- 14. Why do astronomers think the Earth ended up with so little CO₂ compared with Mars and Venus?**
- A) Plant life and abundant water have removed most of the CO₂, locking it into rocks and the oceans.
 - B) Volcanoes on Earth outgassed less CO₂ than on Venus and Mars.
 - C) Comets striking the surfaces of Venus and Mars added CO₂ to their atmospheres, but not to Earth.
 - D) Pollution on Earth has reduced the amount of CO₂ originally present.
- 15. Some recent evidence points to the possibility of there being some liquid water on Mars “recently.” Why does this puzzle astronomers?**
- A) Currently Mars is too hot for liquid water.
 - B) The Martian atmosphere is too thick and clouds would form.
 - C) The Martian atmosphere is too cold and has too low a pressure for liquid water.
 - D) all of the above
- 16. Jupiter's mass is about __times that of the Earth, and its diameter is __ times the Earth's.**
- A) 10, 300
 - B) 30, 100
 - C) 300, 10
 - D) 100, 30
- 17. What are the major gaseous substances that make up Jupiter and Saturn?**
- A) Carbon dioxide and water vapor.
 - B) Hydrogen, hydrogen-rich compounds, and helium.
 - C) Methane and ozone.
 - D) Nitrogen and oxygen.
- 18. Which statement about Jupiter is true?**
- A) It may become a star in about a billion years.
 - B) It has a solid core of ice about 1000 km under the visible surface.
 - C) It is the least dense of the Giant Planets.
 - D) It is more massive than all other planets combined.
- 19. What is the Great Red Spot?**
- A) A region of gas on Jupiter's surface that contains a great deal of iron.
 - B) A huge, spinning vortex larger than the Earth in Jupiter's atmosphere.
 - C) A place on Jupiter's surface where Comet Shoemaker-Levy landed in 1992.
 - D) It's another name for Jupiter.
- 20. Why will astronauts probably never set foot on any of the Giant Planets?**
- A) These planets have no solid surfaces for them to land on.
 - B) Their clouds are so hot that any spacecraft getting near it would burn up.
 - C) Their gravitational attraction is so weak that they would float off.
 - D) Astronauts will land on the Giant Planets -- the idea is perfectly reasonable.

21. Why is the moon Io volcanically active with a hot interior?

- A) Radioactive decay of elements in Io's core heat up the rock to molten temperatures.
- B) Io is very close to the Sun.
- C) Io was formed later than the other Galilean satellites, so it hasn't finished cooling yet.
- D) Io gets flexed between the changing gravitational pulls of Jupiter and Europa, heating it by friction.

22. On which of Jupiter's Moons do scientists think there may exist an ocean covered with ice?

- A) Io
- B) Europa
- C) Ganymede
- D) Callisto.

23. What are the rings of Saturn made of?

- A) Chunks composed of water, ice, and carbon compounds.
- B) A huge sheet of ice.
- C) Helium droplets.
- D) Saturn does not have rings.

24. What is the Roche limit?

- A) The mass a planet must exceed to have satellites
- B) The greatest distance from a planet that its satellites can orbit without falling into the Sun.
- C) The distance at which a moon held together by gravity may be broken apart by the planet's gravitational attraction.
- D) The distance astronomers can see into a planet's clouds.

25. Why are Uranus and Neptune so blue?

- A) Hydrogen appears blue when it reflects sunlight.
- B) They reflect blue light from their moons.
- C) Methane in their atmospheres absorb red light and reflect blue light.
- D) The planets are very hot, so their blackbody spectra peak at blue wavelengths.