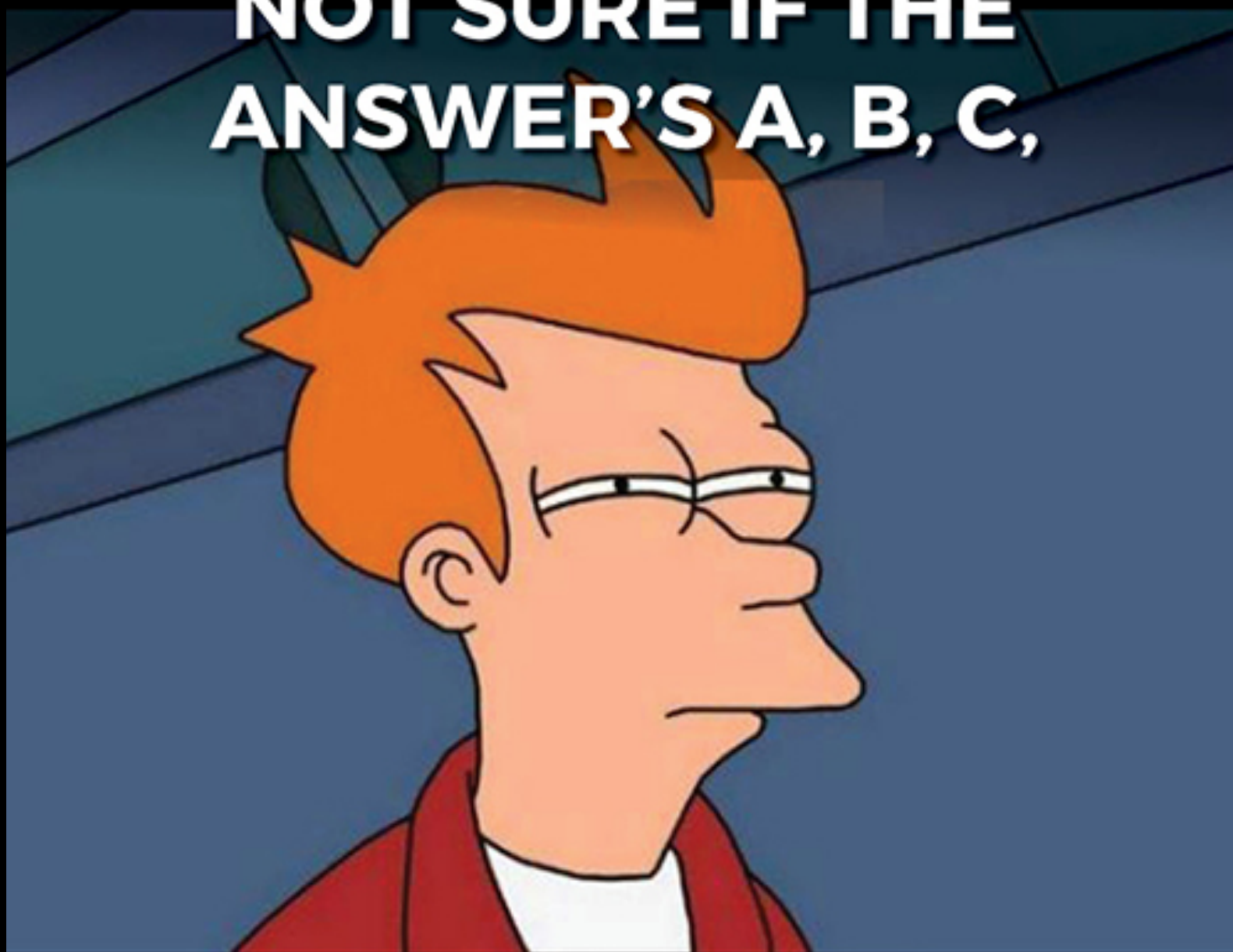


**NOT SURE IF THE
ANSWER'S A, B, C,**



OR ALL OF THE ABOVE

1. What is the smallest planet in our Solar System?

A. Mercury

B. Venus

C. Earth

D. Mars

E. Neptune

2. What is Jupiter's Great Red Spot?

A.It is the remnants of a large comet collision

B.It is an atmospheric area of excess iron

C.It is the shadow of one of NASA's space probes

D.It is a large, semi-permanent hurricane

3. Which of the following can an atmosphere do?

- A. Absorb and scatter light
- B. Create wind and weather
- C. Create pressure
- D. Make a planetary surface warmer via the greenhouse effect
- E. All of the above

4. What is the main cause of global warming on Earth?
- A. Increased radiation from the Sun
 - B. More ultraviolet, visible, and infrared light coming through the ozone holes
 - C. Changes in levels of charged particles hitting Earth
 - D. Increased levels of atmospheric carbon dioxide and methane due to human activity

5. What is the typical structure of a terrestrial planet going from inside to outside:

- A. Mantle, core, crust
- B. Core, mantle, crust
- C. Crust, mantle, core
- D. Core, crust, mantle
- E. It varies depending on the planet

6. Why don't we ever see the back side of the moon?

- A. The back side is permanently in shadow
- B. The moon is constantly being eclipsed
- C. The moon's rotation period is the same as its orbital period
- D. The back side is enshrouded in clouds

7. Which of the following is a greenhouse gas?

A. Hydrogen

B. Oxygen

C. Carbon Dioxide

D. Helium

E. More than one of the above

8. Which planet has had a runaway greenhouse effect?

A. Mercury

B. Venus

C. Earth

D. Mars

E. None of the above

9. What is an effect of plate tectonics on Earth?

- A. Earthquakes
- B. Mountain formation
- C. Subduction zones
- D. Island formation or sinking
- E. All of the above are effects of plate tectonics



10. Why do the lunar highlands have more craters than the lowlands?

- A. The moon's tilt is such that more asteroids hit the highland regions
- B. The higher mountains protect the lowlands from asteroid hits
- C. The craters that were present in the lowlands were wiped out by one large collision
- D. The lowland surface had more craters but was later covered over by lava flows

11. Which of the following does not shape Earth's surface?

A. Erosion by water

B. Erosion by wind

C. Erosion by ice

D. Volcanism

E. All of the above shape Earth's surface

12. Which of the following has NOT been found on Mars:

- A. water ice
- B. volcanoes
- C. canyons
- D. life



13. Which of the Jovian planets have solid surfaces?

- A. Jupiter and Saturn
- B. Uranus and Neptune
- C. All four planets
- D. None of them

14. We call Neptune and Uranus the ice giants. Why is this?

- A. They are both blue, which is roughly the color of ice.
- B. The bulk of their interiors contains “ice” material like water and ammonia.
- C. They have ice crystals in their atmospheres.
- D. They are so far out in the solar system that everything is frozen solid there.

15. What is the main constituent (element/molecule) in the atmospheres of the *giant* planets?

- A. Carbon dioxide
- B. Water
- C. Oxygen
- D. Hydrogen

16. Ganymede is even larger than Mercury. Why don't we consider it a planet?

- A. Ganymede's density is not high enough to make it a planet.
- B. The main object that Ganymede orbits is Jupiter, so it is instead considered a moon.
- C. Ganymede came from outside our solar system.
- D. Ganymede is not round enough to be a planet.

17. Which of the following is an effect of global warming?

A. Glacier melting

B. Sea level rise

C. Changes in weather patterns

D. Mass extinction

E. All of the above could happen with global warming.

18. Which theory describes how we now think the moon formed?

- A. Giant impact theory-- a Mars sized object hit Earth and the moon formed from the resulting debris
- B. Fission-- the moon spontaneously split off Earth and went into orbit around it
- C. "Sister" theory-- the moon formed at the same time, separate from the Earth but nearby
- D. Capture-- the moon formed elsewhere in the solar system but was gravitationally pulled into orbit

19. Has Earth been hit by asteroids?

A. Yes, we think one killed off the dinosaurs.

B. No, we don't see any craters, so there could not have been any hits.

C. Yes, one wiped out an entire city in China in 2013.

D. No, there just aren't enough asteroids near us to collide with.



20. If you view the blackbody curve of Earth, what form of light would it peak in?

- A. Visible
- B. IR
- C. UV
- D. None of the above



21. Which of the following is important for the Greenhouse Effect?

- A. Ozone layer heats up atmosphere by absorbing ultraviolet light.
- B. The atmosphere is more transparent to visible light than to infrared light.
- C. Heat energy is trapped in circulation patterns of the ocean.
- D. The atmosphere shelters earth's surface from solar wind.
- E. Humidity from water vapor makes the atmosphere feel hotter.

22. What stage in the formation of the Solar System do we think happened LATEST:

A. The Sun formed

B. Planetesimals merged into planets

C. The Solar Nebula collapsed

D. The Solar System started rotating
feel hotter.

23. What is the main reason why Venus is hotter than Earth?

- A. Venus is closer to the Sun than Earth.
- B. Venus is more reflective than Earth.
- C. Venus is less reflective than Earth.
- D. The greenhouse effect is much stronger on Venus than on Earth.
- E. Human activity has led to declining temperatures on Earth.

24. Which of the following is true about craters:

- A. They are all due to collapsed volcanoes
- B. Their numbers indicate the relative age of a planetary surface
- C. We haven't found any on Earth's surface
- D. They are made by comets

25. Which planet contains most of the matter in the solar system?

- A. Mercury
- B. Saturn
- C. Jupiter
- D. Uranus

26. Which of the following causes an unhealthy level of ultraviolet radiation to reach Earth's surface?

- A. Global warming
- B. Greenhouse effect
- C. Ozone depletion
- D. None of the above

27. Which Mars mission is currently sending data back to Earth:

A. Viking

B. Curiosity

C. Mariner

D. Mars Facefinder

28. Which planet does not have any moons?

A. Venus

B. Earth

C. Mars

D. Jupiter

E. Saturn



29. Below their atmospheres, Jupiter and Saturn are mostly...

- A. Solid
- B. Liquid
- C. Gas
- D. Ice

30. What is one reason why Mars is seen as more livable for humans than Venus?

A. Mars' temperature is just right for us in places, whereas Venus is too hot everywhere.

B. The gravity is lower on Mars than on Venus.

C. Mars has a thicker, more protective atmosphere.

D. Venus has more dust storms.

31. What is the most volcanically active object in the solar system?

A. Venus

B. Earth

C. Mars

D. Io

E. Neptune

32. What is the main reason why Mercury has almost no atmosphere?

- A. During its formation, there was not enough gas to make an atmosphere.
- B. Missions from Earth have burned it all up.
- C. The heat from the Sun has boiled it all off.
- D. Its lower gravity means that molecules can escape to space more easily than they would from larger planets.



33. What is a main difference between the atmosphere of Mars and that of Venus?

- A. Mars' atmosphere is much thinner and less dense
- B. Venus' atmosphere is primarily CO₂, whereas Mars' is mostly oxygen.
- C. Venus' atmosphere generates high winds near the surface, whereas Mars' doesn't
- D. Mars' atmosphere used to have a different composition, whereas Venus' has stayed the same over time



34. Where in the solar system do we currently think we have the best chance of finding current signs of ocean life (apart from Earth)?

- A. Venus
- B. Mars
- C. Europa
- D. Pluto

35. A planet or moon that has tectonics but not volcanism most likely shows:

- A. Cracks or ridges on its surface
- B. Active lava flows
- C. Only craters
- D. No atmosphere

36. Which events were NOT part of the runaway refrigerator effect on Mars?

- A. Gases in the atmosphere started escaping to space due to Mars' low gravity
- B. All of the carbon dioxide that was present in Mars' atmosphere evaporated
- C. With less atmosphere to insulate Mars, its temperature dropped
- D. When the temperature on Mars dropped sufficiently, remaining water froze

37. Some 4-5 billion years ago the planets were forming out of a nebula of dust and gas. Moving out in distance from the young Sun, what trend did the temperature follow?

- A. High temperatures close to the Sun, decreasing further outward in the nebula
- B. Low temperatures close to the Sun, getting hotter further outward in the nebula
- C. Uniform temperatures throughout the nebula
- D. We don't actually know what temperatures were like in the early solar system

38. Terrestrial planets and Jovian planets share some features. Which of the following is NOT present in/on the Jovian planets?

- A. Rotating cyclonic storms like hurricanes
- B. Cores of high temperature metal
- C. Volcanoes, plate tectonics, and impact craters
- D. Magnetic fields that extend into space

39. After astronauts visited the moon, what was the most accurate way to find out the age of the surfaces that they stepped on?

- A. Count up the number of craters that the astronauts observed
- B. Analyze the water content of the soil they were on
- C. Measure the quantities of radioactive elements in the returned rocks samples
- D. It was impossible to accurately determine how old those parts of the moon were.

40. Mercury and the moon are both shrinking very slowly. This may cause...

- A. Cracks and ridges on their surfaces
- B. Active volcanism
- C. Quakes
- D. A and B
- E. A and C

41. Carbon dioxide levels in Earth's atmosphere have historically oscillated between 175 and 275 ppm (parts per million) over the last 400,000 years. Approximately how high are they today?

- A. 215 ppm
- B. 300 ppm
- C. 400 ppm
- D. 800 ppm

42. About how old do we think the solar system is?

- A. 4.6 million years old
- B. 460 million years old
- C. 4.6 billion years old
- D. 46 billion years old