

NAME _____

How do you feel about your work so far this quarter?

Are you doing all the assignments?

Which program activities contribute the most to your learning (including reading)?

The questions below are taken directly from the online quizzes, so you should find them familiar.

1. One feature of the sky that was most probably used by ancient people to define directions and thereby navigate safely across oceans was the fact that

- A. the Moon rose and set at the same points on the horizon every night.
- B. certain stars rose and set at the same points on the horizon every night.
- C. the Sun rose and set at the same points on the horizon every day.

2. If one stands on the equator, are there any stars that always remain above the horizon, that is, are circumpolar?

- A. No. It depends on the time of year or the season. This is because the Earth's axis tilts at different angles to the equator at different times of the year, making some stars circumpolar at certain times of the year.
- B. Of course. All stars would be visible for 24 hours from this location if it were not for daylight.
- C. Yes. From this position, all stars cross the horizon at some time, rising and setting at intervals of 12 hours.

3. What is the primary reason for the seasons on the Earth (spring, summer, fall, and winter)?

- A. The tilt angle of the Earth's axis of rotation changes relative to the Earth's orbital plane. Spring and fall occur when the axis of rotation is perpendicular to the orbital plane, summer and fall when the axis is tilted toward and away from the Sun.
- B. The Earth's axis of rotation tilts in a constant direction relative to the Earth's orbital plane. The motion of the Earth around the Sun then changes the angle of incidence of solar radiation at each point on the Earth's surface through the year.
- C. The distance between Sun and Earth varies because of the elliptical orbit of the Earth. Summer occurs when the Earth is closest to the Sun, winter when the Earth is farthest from the Sun.

- 4. The distance from the Sun to Mars is about 220,000,000 km. What is this distance in scientific notation?**
- A. 2.2×10^9 km
 - B. 2.2×10^8 km
 - C. 2.2×10^7 km
- 5. Approximately when does the full Moon rise?**
- A. midnight
 - B. Sunset
 - C. midday
- 6. In a particular total solar eclipse, the Moon is observed to just cover the Sun from a location on Earth. In other words, the Moon's angular size is the same as that of the Sun. If the Sun is 1.5×10^8 km away and has a diameter of 1.4×10^6 km, how far away is the Moon if its diameter is 3.5×10^3 km?**
- A. 3.27×10^1 km
 - B. 3.75×10^3 km
 - C. 3.75×10^5 km
- 7. The plane of the ecliptic is a flat plane**
- A. containing the Moon's orbit.
 - B. defined by the intersection of the Earth's orbit and the Moon's orbit.
 - C. containing the Earth's orbit.
- 8. A planet moving in an ellipse with the Sun at one focus will have a speed that is highest when it is**
- A. constant along the orbit, as required by Kepler's law.
 - B. farthest from the Sun.
 - C. closest to the Sun.
- 9. Why are some solar eclipses annular (with all but an annular ring of the Sun obscured) rather than total (the whole Sun obscured)?**
- A. The Moon's orbit is elliptical, and occasionally the Moon is too far away for the umbra of its shadow to reach the Earth's surface.
 - B. The Earth is sometimes farther away from the Sun such that the Moon's angular diameter is less than that of the Sun at this time.
 - C. The Moon's shadow passes just north or south of Earth, causing only an annular ring eclipse
- 10. According to Kepler's third law, an asteroid orbiting the Sun in a circular orbit at twice the Earth's distance from the Sun would have a sidereal period of**
- A. 2.8 years.
 - B. 4.0 years.
 - C. 8.0 years.

11. The tides produced in the Earth's oceans by the Moon show which of the following patterns?

- A. two high and two low tides per month
- B. one high and one low tide per day
- C. two high and two low tides per day

12. Galileo observed four moons orbiting Jupiter. How did this observation contradict Greek dogma about the universe, incurring the wrath of the established church, which believed and taught the Greek idea?

- A. This observation showed that there were objects that did not orbit the Sun, as required by the Greek model.
- B. This observation showed that there were objects that did *not* orbit the Earth, contrary to the Greek model.
- C. This observation showed that other planets than the Earth had a moon or moons, contrary to Greek belief.

How do you feel about this midquarter quiz? Too hard? About right? Too easy?

How is your research project going? Questions?

How are your teams working out? Do you need any help with team dynamics?

Do you feel you are meeting your learning goals?

Other feedback or insights you would like to share?