

Closed book, closed notes. Clearly circle ("O") the one choice that you think is most definitely correct. Cross out ("X") only one choice that you think is definitely incorrect.

For questions (1)-(3), a total lunar eclipse will be visible for observers in San Luis Obispo, CA on May 26, 2021.¹

1. [4.0 points.] During this total lunar eclipse, the moon will be in its _____ phase.
 - (A) new.
 - (B) first quarter.
 - (C) full.
 - (D) third quarter.
 - (E) (Depends on the time of day.)

2. [4.0 points.] During this total lunar eclipse, the moon will be located in:
 - (A) Earth's umbra.
 - (B) Earth's penumbra.
 - (C) Earth's negative shadow.
 - (D) (none of Earth's shadow zones.)

3. [4.0 points.] During this total lunar eclipse, observers in San Luis Obispo, CA will see:
 - (A) the moon completely blocking the sun.
 - (B) the sun, with part of it being blocked by the moon.
 - (C) the sun, with no part of it being blocked by the moon.
 - (D) the moon, completely within Earth's shadow.
 - (E) the moon, completely illuminated by the sun.

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4. [4.0 points.] _____ explained the prograde and retrograde motion of a planet by having it move on a circle that itself moves around Earth.
 - (A) Aristotle.
 - (B) Ptolemy.
 - (C) Copernicus.
 - (D) Tycho.
 - (E) Kepler.
 - (F) Galileo.
 - (G) Newton.

 5. [4.0 points.] _____ explained the prograde and retrograde motion of a planet by having it orbit at a different speed than Earth's orbit around the sun.
 - (A) Aristotle.
 - (B) Ptolemy.
 - (C) Copernicus.
 - (D) Tycho.
 - (E) Kepler.
 - (F) Galileo.
 - (G) Newton.

 6. [4.0 points.] Tycho did not observe any parallax for a new star, which disproved:
 - (A) uniform planetary motion.
 - (B) perfect and unchanging heavens.
 - (C) a cause and effect dependence in nature.
 - (D) Venus undergoes a complete set of phases.

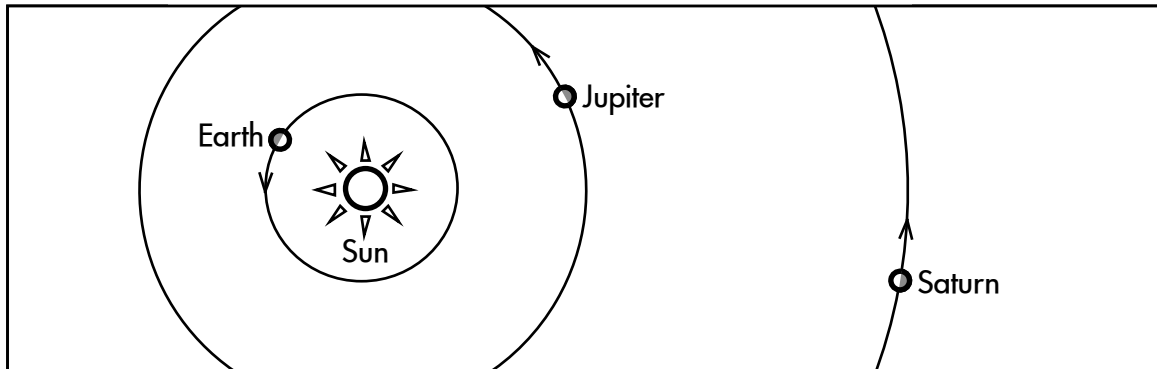
Questions (7)-(10) are continued on the back of this page.

¹ timeanddate.com/eclipse/lunar/2021-may-26.
19.08.17

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This quiz continues from questions (1)-(6) on the other side of this page.

For questions (7)-(8) the locations of Earth, Jupiter, and Saturn are shown in the diagram below (not to scale, and orbits have been simplified as circles instead of ellipses).



7. [4.0 points.] At sunset, _____ will be visible somewhere in the sky.
- (A) Jupiter.
 - (B) Saturn.
 - (C) (Both of the above choices.)
 - (D) (Neither of the above choices.)
8. [4.0 points.] At sunrise, Jupiter will be:
- (A) low over the east horizon.
 - (B) somewhere high up in the sky.
 - (C) low over the west horizon.
 - (D) not visible in the sky.
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9. [4.0 points.] Galileo's observations of the moons of Jupiter supported the heliocentric model of planetary motion over the geocentric model because:
- (A) no parallax was observed.
 - (B) their orbits were elliptical instead of circular.
 - (C) it showed that epicycles and deferents were not real.
 - (D) there could be centers of motion other than Earth.
10. [4.0 points.] Newton's laws remade astronomy into an analytical science because these laws make predictions that:
- (A) could be tested by observation.
 - (B) the universe is perfect and unchanging.
 - (C) describe motion without explaining why it occurs.
 - (D) deduced truth about the universe from first principles.