Name _____ Class _____ Date _____

Chapter 29

The Solar System

Review

Choose the best response. Write the letter of that choice in the space provided.

_____ **1.** Ptolemy modified Aristotle's model of the universe to include

a. Oort clouds. **b.** retrograde motion.
c. comets. **d.** shooting stars.

_____ **2.** Copernicus's model of the solar system differed from Ptolemy's because it was

a. geocentric. **b.** lunocentric. **c.** ethnocentric. **d.** heliocentric.

_____ **3.** Kepler's first law states that each planet orbits the sun in a path called

a. an ellipse. **b.** a circle. **c.** an epicycle. **d.** a period.

_____ **4.** Kepler's law that describes how fast planets travel at different points in their orbits is called the law of

a. ellipses. **b.** equal speed. **c.** equal areas. **d.** periods.

_____ **5.** The weak magnetic field around Mercury suggests

a. volcanic activity. **b.** a dense atmosphere.
c. a core of molten iron. **d.** that it is located close to the sun.

_____ **6.** The planet that rotates in a direction that is opposite the direction of the other planets is

a. Mercury. **b.** Venus. **c.** the earth. **d.** Mars.

_____ **7.** The tilt of the axis of Mars is nearly the same as that of

a. Mercury. **b.** Venus. **c.** the earth. **d.** Jupiter.

_____ **8.** The planet that rotates faster than any other planet in the solar system is

a. the earth. **b.** Jupiter. **c.** Uranus. **d.** Pluto.

_____ **9.** The most distinctive feature of Jupiter is its

a. Great Red Spot. **b.** Great Dark Spot.
c. rings. **d.** elongated orbit.

Chapter 29

Choose the best response. Write the letter of that choice in the space provided.

_____ **10.** All of the outer planets in the solar system are large except

a. Saturn. **b.** Uranus. **c.** Neptune. **d.** Pluto.

_____ **11.** The asteroid belt exists in a region between the orbits of

a. Mercury and Venus.
b. Venus and the earth.
c. the earth and Mars.
d. Mars and Jupiter.

_____ **12.** The composition of asteroids suggests that they are

a. small moons.
b. fragments of planetesimals.
c. the nuclei of comets.
d. environments that possibly can support life.

_____ **13.** Meteoroids can provide information about

a. the composition of the solar nebula before the earth and its moon formed.
b. the size of the earth.
c. the destiny of the solar system.
d. the size of the universe.

Critical Thinking

Read each question or statement and answer it in the space provided.

1. Assume that an intelligent life-form exists on Pluto—the planet with the longest orbit period in the solar system. Would astronomers on Pluto be likely to propose a heliocentric model of the solar system? Explain your answer.

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Name _____ Class _____ Date _____

Chapter 29

Read each question or statement and answer it in the space provided.

2. If you know the distance from the sun to a planet, what other information can you determine about the orbit of the planet? Explain your answer.

3. The surfaces of some asteroids reflect only small amounts of light. Other asteroids reflect up to 40 percent of the light falling on them. Of what materials would each type of asteroid probably be composed?

4. By constructing a **concept map,** you make connections that illustrate relationships among certain terms. How would doing so assist your understanding of this chapter?

Name _____ Class _____ Date _____

Chapter 29

Application

Read each question or statement and answer it in the space provided.

1. Suppose that a new planet has just been discovered. It has no rings or moons and has a surface pitted with impact craters. In what group of planets do you think this planet is located? Explain how you know.

2. What type of core do you predict that the new planet mentioned in Question 1 will have?

3. Suppose you live in an unglaciated area and have found a chunk of rock that you suspect might be a stony meteoroid. What data would help you verify your hypothesis?