Name _____ Class _____ Date _____

CHAPTER 29 STUDY GUIDE FOR CONTENT MASTERY

Our Solar System

SECTION 29.1 *Overview of Our Solar System*

In your textbook, read about early ideas.
Write the letter of the term from Column B next to its matching item in Column A.

Column A		Column B
_____	**1.** Motion of a planet moving in the opposite direction of the normal direction of planetary motion as observed from Earth	**a.** aphelion
_____	**2.** Point in a planet's orbit when it is farthest from the Sun	**b.** astronomical unit
_____	**3.** Nicolaus Copernicus's model of the solar system in which the planets orbit the Sun	**c.** eccentricity
_____	**4.** Oval shape centered on two points instead of one point	**d.** ellipse
_____	**5.** Point in a planet's orbit when it is closest to the Sun	**e.** heliocentric
_____	**6.** Defines a planet's elliptical orbit as the ratio of the distance between the foci and the length of the major axis	**f.** perihelion
_____	**7.** Unit of measure that is the average distance between the Sun and Earth (1.4960×10^8 km)	**g.** retrograde

In your textbook, read about gravity and orbits.
Use each of the terms below just once to complete the passage.

acceleration	**center of mass**	**distance**	**force**
Isaac Newton	**masses**	**Moon**	**universal gravitation**

English scientist **(8)** _____ developed an understanding of gravity by observing the motion of the **(9)** _____, the orbits of the planets, and the **(10)** _____ of falling objects on Earth. He learned that two bodies attract each other with a **(11)** _____ that depends on their **(12)** _____ and the **(13)** _____ between the bodies. This is called the law of **(14)** _____. He also determined that each planet orbits a point between itself and the Sun. That point is called the **(15)** _____.

Thinking Critically

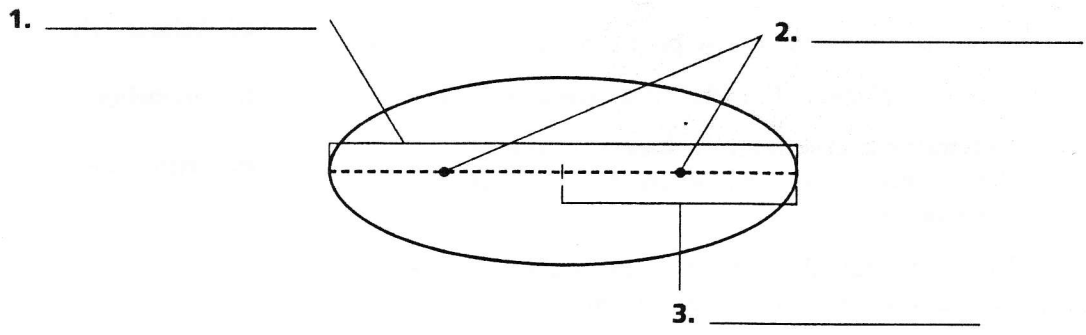
Planetary Motion

Kepler's laws of planetary motion demonstrate that each planet's orbit around the Sun sweeps out in a shape called an ellipse, rather than a circle. This means that a planet does not maintain a constant distance from the Sun. Kepler found that an imaginary line between the Sun and a planet sweeps out equal amounts of area in equal amounts of time. Kepler also discovered a mathematical relationship between the size of a planet's ellipse and its orbital period.

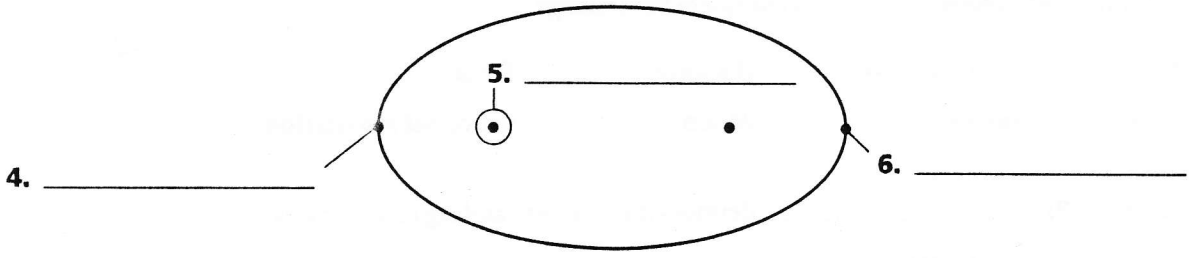
Use the terms below to label the two diagrams.

foci	**semimajor axis**	**perihelion**
major axis	**aphelion**	**Sun**

Elliptical Orbit of a Planet



Orbit of Pluto



7. How does a model of the solar system in which the planets have elliptical orbits explain the difference in the speed of the planets?