

Name_____

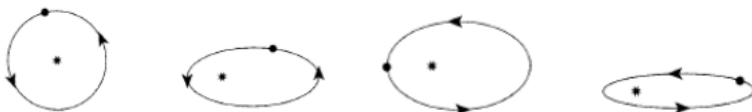
Period_____

Kepler's Laws Practice Set

1. Kepler's First Law states that a planet moves on an ellipse around the sun. Where is the sun within the ellipse?

2. Which diagram shows a planet with the least eccentric orbit?

(Key: • = planet * = star)



3. Which of the following is more elliptical based off of its eccentricity?

A. 0.0035

B. 0.035

C. 0.35

D. 0.53

4. The place where a planet is farthest away from the sun in its orbit is called the

A. aphelion

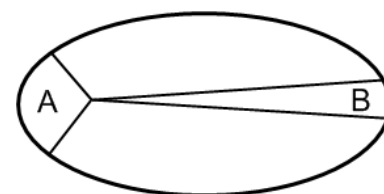
B. perihelion

5. Define Kepler's 2nd law of planetary motion.

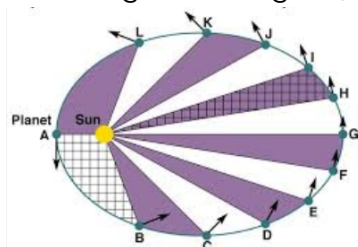
6. In the picture to the right, the area in section A = the area in section B.

a. According to Kepler's 2nd law, which section takes more time for the planet to travel?

b. When is does an orbiting body travel at a higher speed: close to the star/sun or further away from it?



7. Looking at the diagram, at which letter is the planet moving fastest?

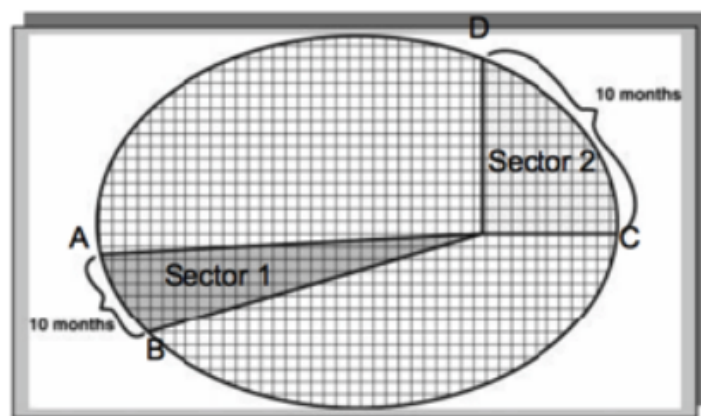


8. Look at the diagram to the right. Count the number of squares in sector 1 and in sector 2.

Squares in Sector 1: _____

Squares in Sector 2: _____

9. In the diagram to the right, it takes the same amount of time for a planet to get from point A to point B, as it does for a planet to get from point C to point D. Between which two points is it moving fastest?



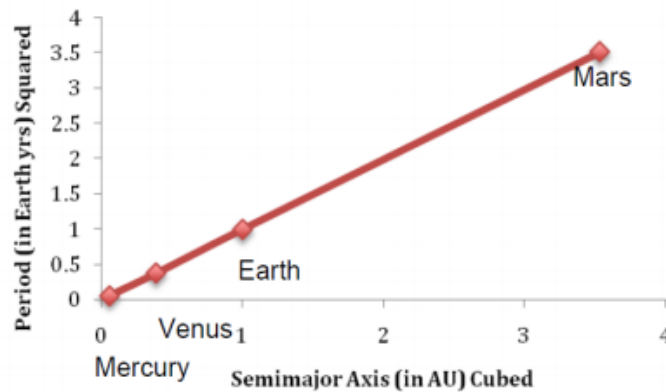
10. Define Kepler's 3rd law of planetary motion. Include both the formula description.

11. In each set, identify the name of the planet that has a shorter orbital period.

Set 1: Mars, Jupiter	
Set 2: Mercury, Earth	
Set 3: Neptune, Uranus	

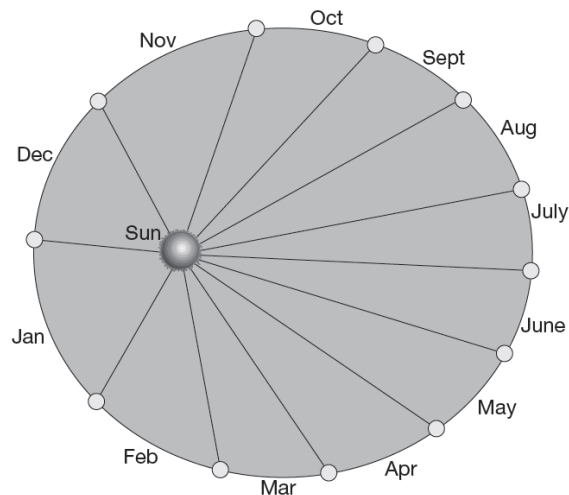
12. The graph below displays Kepler's 3rd law of planetary motion. If you were to see a graph that continued further into the solar system, you would expect that that Jupiter's orbital period squared (the time it takes to revolve around the sun) to be:

- A. greater than 3.5 B. less than 3.5 C. equal to 3.5



13. The dwarf planet Pluto is 39.5 AU's from the Sun. How long does it take to go around the Sun once? (hint: look at the formula in #10)

Use this diagram to answer questions 14 and 15



14. Identify the word that describes the shape of the planet's orbit as shown in the figure.

- a. circle b. retrograde c. ellipse d. focus

15. True or False: During December and January on the figure, the planet is moving the fastest.