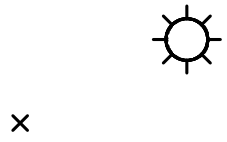
Homework 4 Quiz– Kepler's First and Second Laws

Name: _____ Lab Section: _____

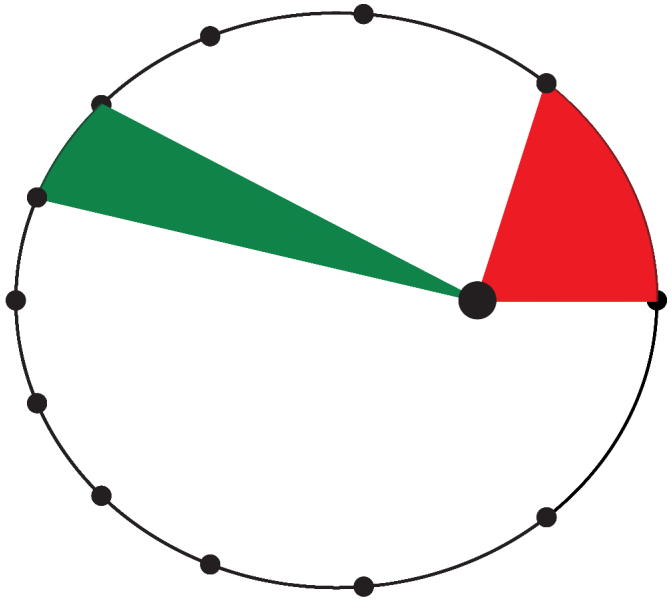
1. Draw a moderately eccentric orbit around the star shown such that the point marked with an X is the point where the planet is the closest to its star.



(There is another question on the back of this page.)

2. Here is a diagram of the orbit of a moon around its planet. Suppose that the moon orbits the planet counterclockwise as seen from this perspective.

   The moon takes twelve Earth days to orbit its planet; its location each day is shown with a dot alongside the orbit.



(a) Choose a location where the planet is *speeding up* and label it (a)

(b) Find the location where the planet is *moving slowest* and label it (b)

(c) How does the *area* of the red shaded region on the right compare to the area of the green shaded region on the left? (Which one is larger, or are they equal?)

(d) Explain briefly how you know.