

# Kepler's Law Lab

AP Physics C

# Instructions

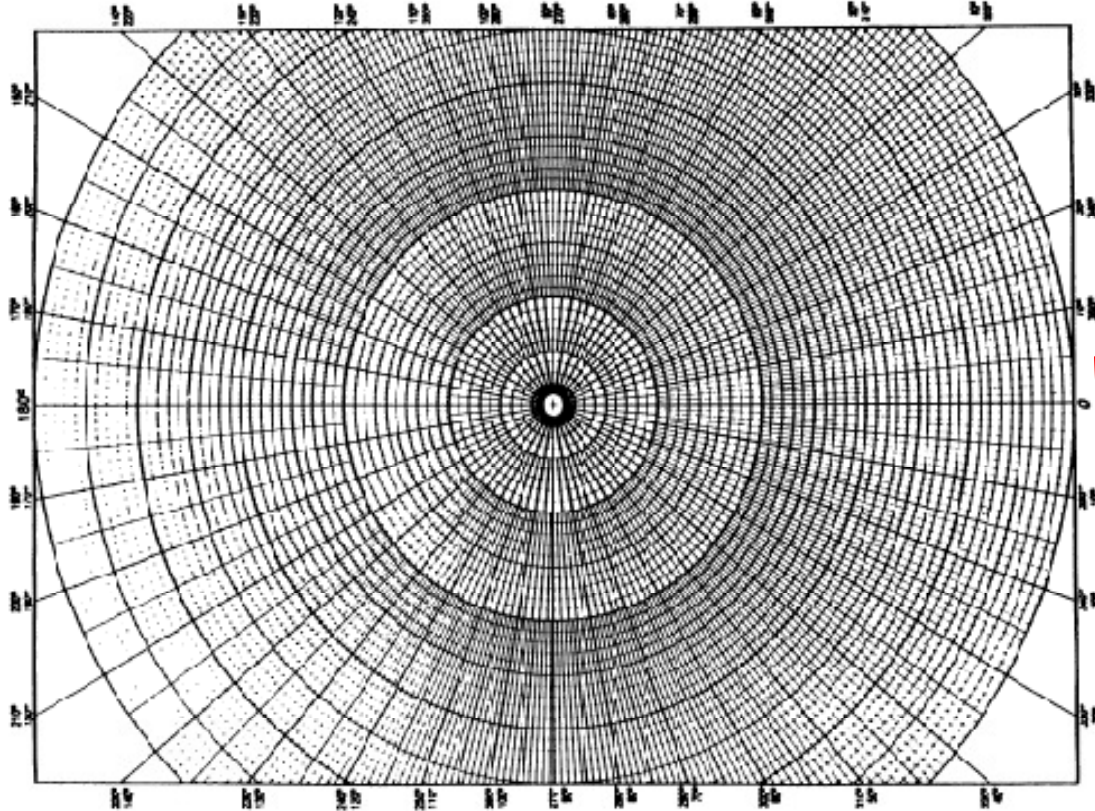
**First we will start by going through the instructions step by step so make sure you have a copy of the lab in front of you.**



1. Orient your polar graph paper so that the zero degree mark is on your right.
2. The sun is located at the center of the paper, label the sun.
3. Move about the paper in a counter clockwise direction as you label the longitude.
4. Select a scale to represent the values for the radius vectors of Mercury's orbit.
5. Since Mercury is closer to the Sun than the Earth, all the values for the vectors will be less than 1 AU. I would have each concentric circle represent 0.1 AU.
6. Table one provides the heliocentric positions of Mercury over several months.
7. Start with October 1<sup>st</sup> and plot the longitude on the polar graph paper, label this point October 1<sup>st</sup>
8. Repeat the procedure plotting all the positions for Mercury—label the beginning of each month with the date.
9. After plotting all the data points carefully connect the positions to create the orbit of Mercury.

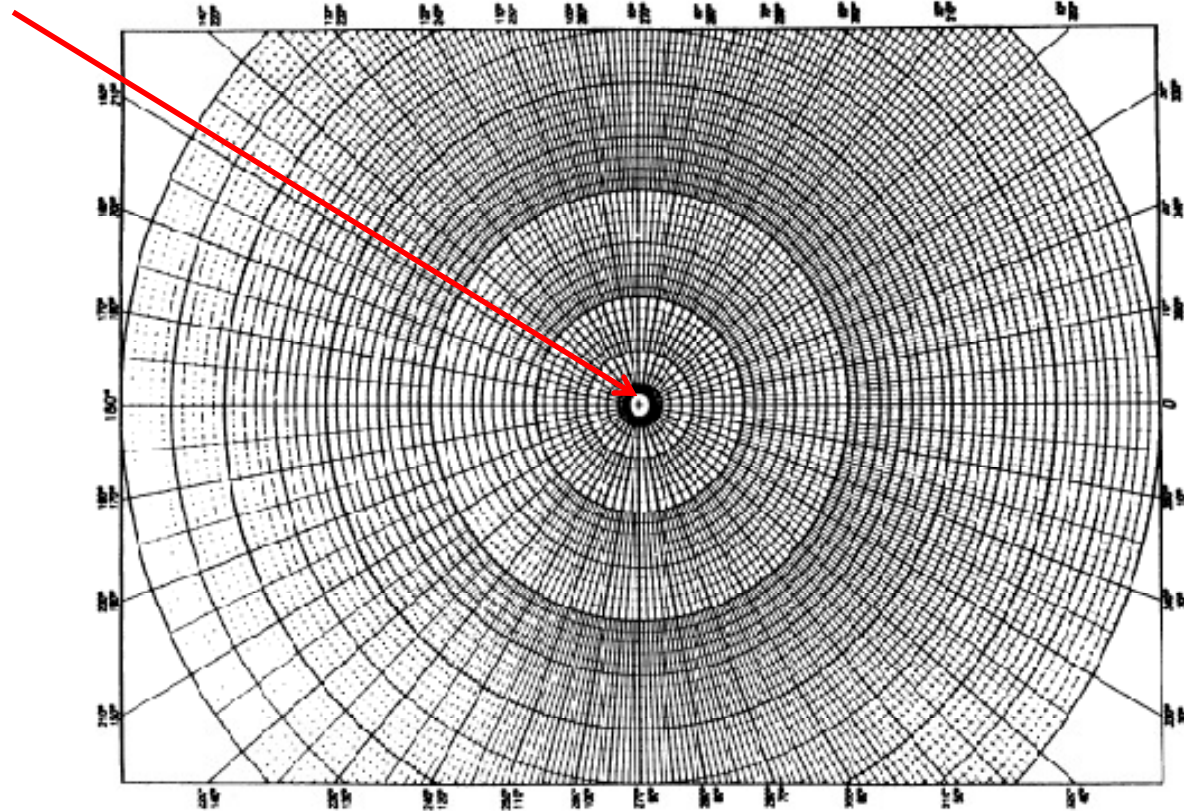
# 1

Orient your polar graph paper so that the zero degree mark is on your right.



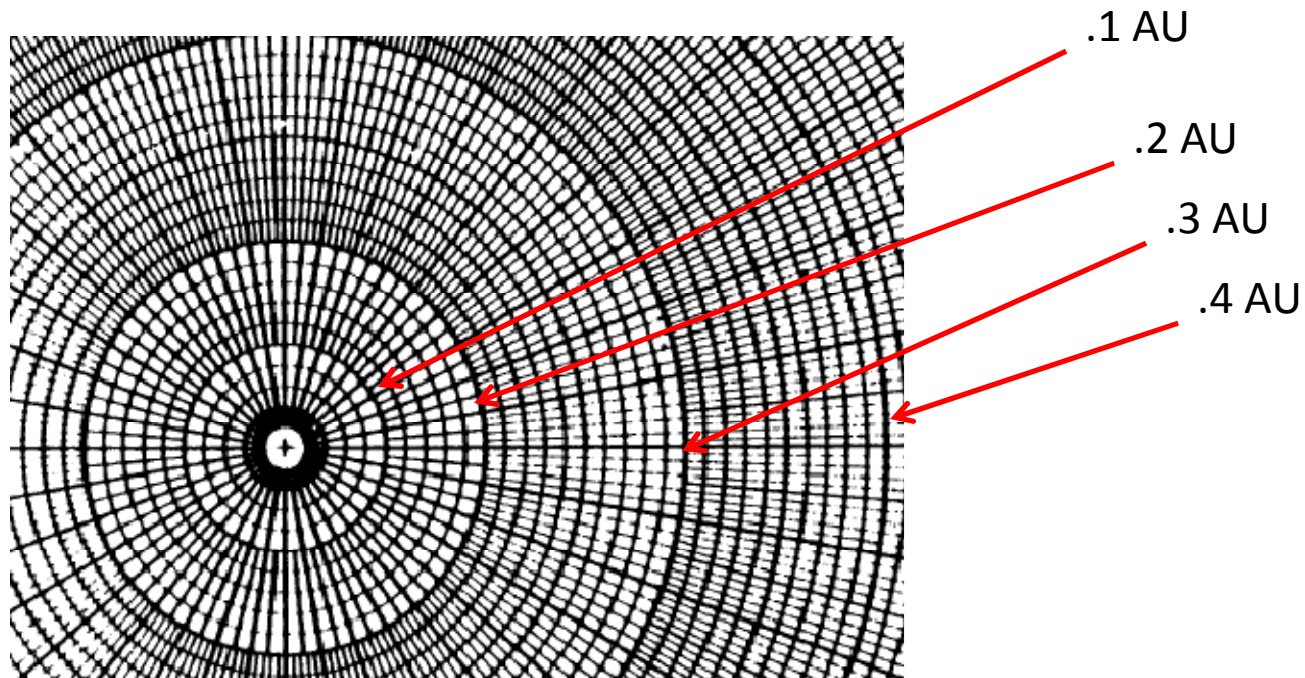
2

The sun is located at the center of the paper,  
label the sun



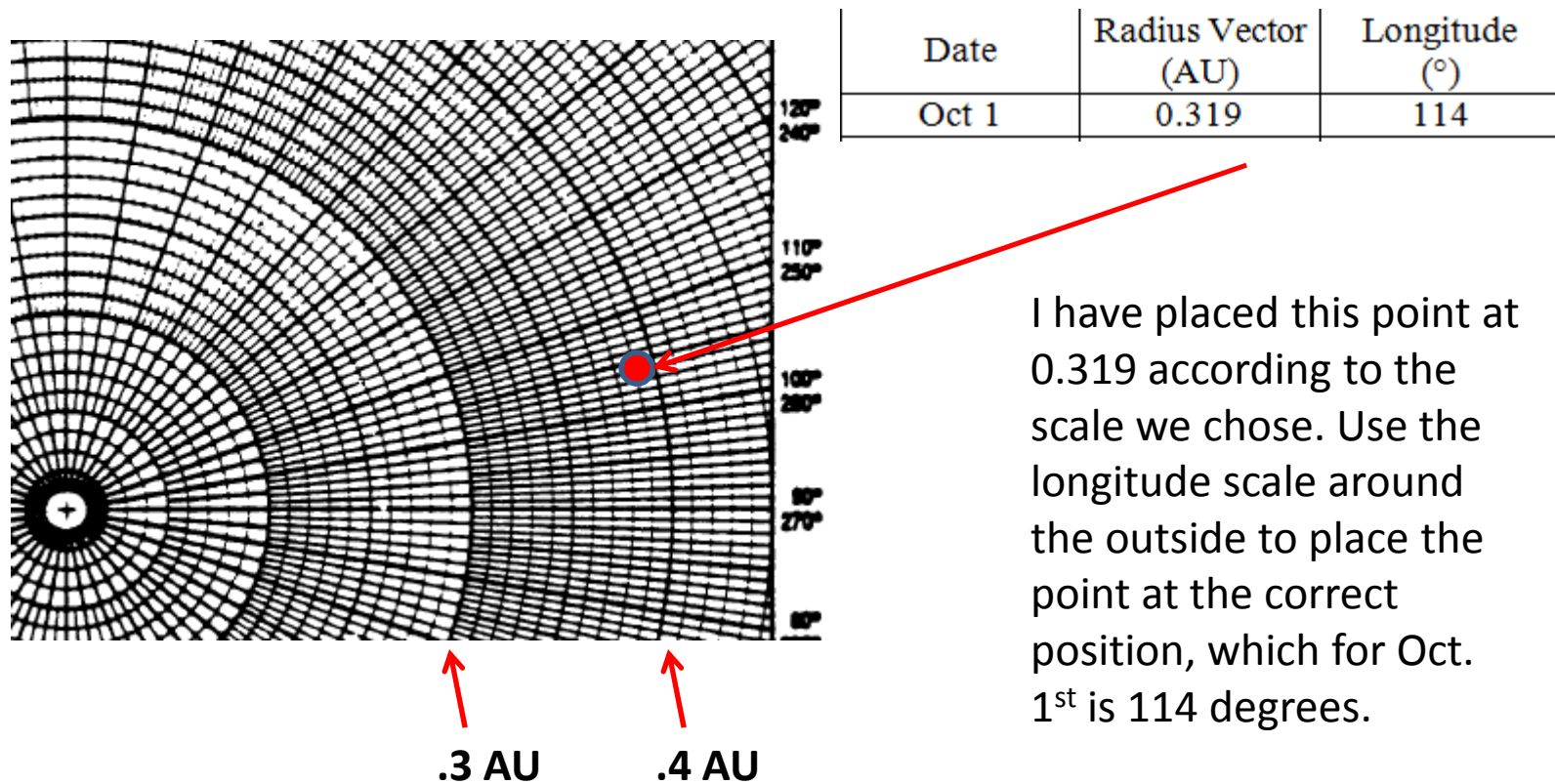
# 3

- Move about the paper in a counter clockwise direction as you label the longitude.
- Select a scale to represent the values for the radius vectors of Mercury's orbit.
- Since Mercury is closer to the Sun than the Earth, all the values for the vectors will be less than 1 AU. I would have each **DARK** concentric circle represent 0.1 AU.



# 4

Start with October 1<sup>st</sup> and plot the longitude on the polar graph paper, label this point October 1<sup>st</sup>. Repeat the procedure plotting all the positions for Mercury—label the beginning of each month with the date.



# 5

- Repeat the procedure plotting all the positions for Mercury—label the beginning of each month with the date.
- After plotting all the data points carefully connect the positions to create the orbit of Mercury