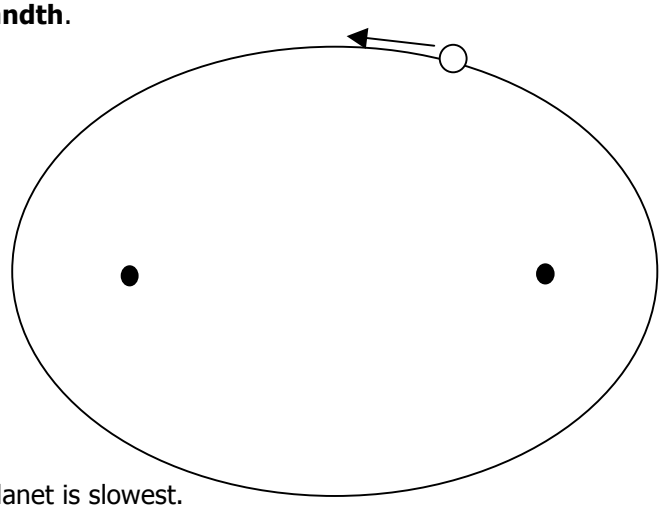
Exit Ticket: Ellipses Calculations

Name: _____ Per ____ Date _____ Grade = _____/10

Below is a particularly eccentric ("oval-like") object (satellite) orbiting around a gravitational point (i.e., a planet orbiting around a sun).

1. Label one of the foci the Sun.
2. Draw and label the major axis of this ellipse.
3. Calculate the eccentricity of the ellipse **to the nearest thousandth**.
   Show ALL work:



Eccentricity = _____

Now, envision the planet orbiting the sun and do the following:

4. Put an "S" on the orbital line where the orbital velocity of the planet is slowest.
5. Put an "F" on the orbital line where the orbital velocity of the planet is fastest.

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Below is a particularly eccentric ("oval-like") object (satellite) orbiting around a gravitational point (i.e., a planet orbiting around a sun).

6. Label one of the foci the Sun.
7. Draw and label the major axis of this ellipse.
8. Calculate the eccentricity of the ellipse **to the nearest thousandth**.
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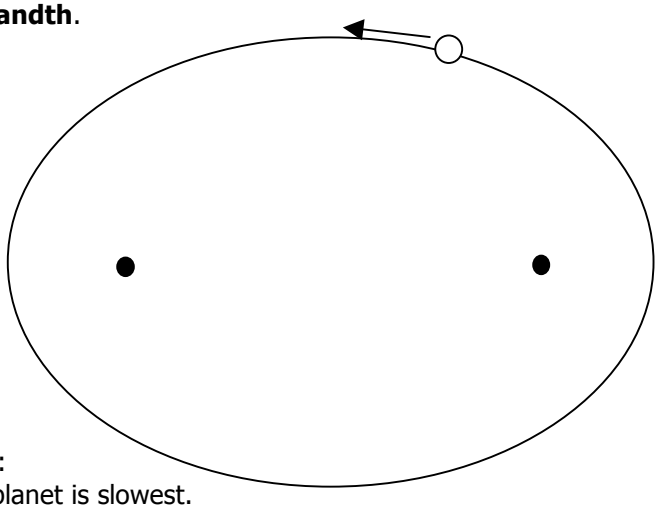

Eccentricity = _____

Now, envision the planet orbiting the sun and do the following:

9. Put an "S" on the orbital line where the orbital velocity of the planet is slowest.
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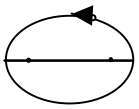
Grader's Name :_____ Grade: _____ / 10

Rubric for Grading Ellipse Exit Ticket
Grade your partner(s) exit ticket. Record either full credit (1 point) or no credit (0 points) for each item shown below.
Remember that each item below is worth 1 point!



A. One of the two foci (**either focus!**) is labeled as the sun. CREDIT: _____

B. The major axis is clearly drawn passing *directly* through both foci (see diagram). CREDIT: _____

ELLIPSE MATH

C. The eccentricity formula is shown clearly copied from p. 1 of the ESRTs. CREDIT: _____

D. The distance between foci is "plugged" into the work shown as **5.5** (+/- 0.2 cm). CREDIT: _____

E. The length of the major axis is "plugged" into the work shown as **8.5** (+/- 0.2 cm). CREDIT: _____

F. If both formula values include units (centimeters (cm) is this case). CREDIT: _____

G. The final answer shown is correct based upon their data values (**no units allowed!**). CREDIT: _____

H. Eccentricity answer is correctly rounded to the nearest thousandths place. CREDIT: _____
(As an example: 0.045 is rounded to the nearest thousandths)

I. The location along the planet's orbit that is **closest** to the sun is labeled "fast" CREDIT: _____

J. The location along the planet's orbit that is **farthest** from the sun is labeled "slow" CREDIT: _____

Grader's Name :_____ Grade: _____ / 10

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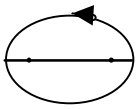

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B. The major axis is clearly drawn passing *directly* through both foci (see diagram). CREDIT: _____

ELLIPSE MATH

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