

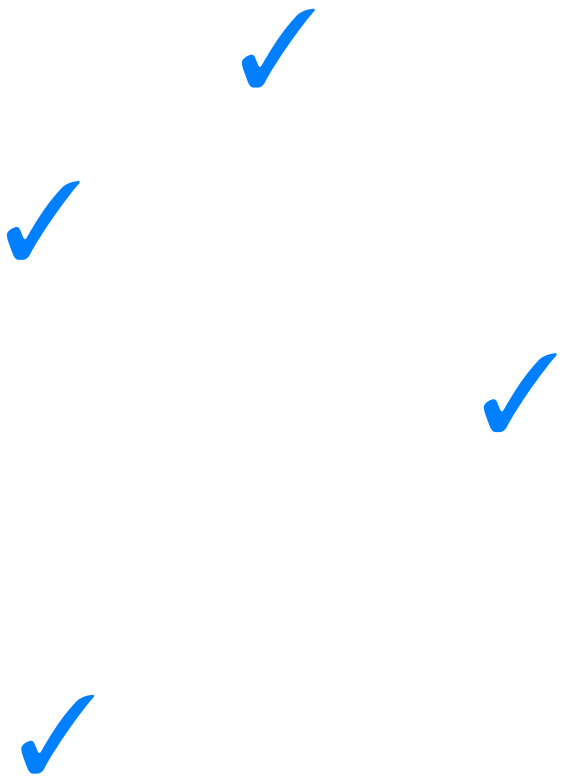

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Step #5 Measure 1 cm to the left of the center point and make a dot

Step #6 Measure 1 cm to the right of the center point and make a dot

Step #7 Label the dot on the left "F_1" and the dot on the right "F_2". These are your two foci.

Step #8 Measure the distance between the two foci (it should be 2.0 cm)

Step #9 Label this sheet “Ellipse A” and record the foci distance on the top right side of the sheet

Step #10 Push a pushpin through each of the foci until they are

secure in the pressboard but do not push it all the way in.

Step #11 Loop the

string around the two pushpins. Be sure the string is on the metal part of the pins, not the plastic part.

Step #12 Using the string as a guide for your pencil, draw an ellipse.

foci distance
= 20cm

Ellipse A foci distance
- 2.0cm

Step #13 Once your ellipse is completed,

measure the length of the major axis (the distance across the ellipse, through the two foci)

major axis

Step #15 Find the formula for eccentricity on the cover of your ESRT

Step #16 Record the eccentricity formula on the top left side of your sheet

Step #17 Substitute in your measurements

Step #18 Use a calculator to solve the equation

Step #19 Record your answer to the nearest

thousandth (three places). Eccentricity DOES NOT get any units.

Step #20 Choose one of your foci (either one) and draw an orange circle around it. This focus will represent the Sun.

Step #21 On the side of the ellipse closest to the Sun, mark an “X” and label it as seen here.

Step #22 On the side of the ellipse farthest from the Sun, mark an “X” and label it as seen here.

Ellipse B *foci*

distance = 5 cm

Ellipse C foci

distance = 8 cm

held

Diagram #1

this orbit are the points

labeled F_1 and F_2.

Moon

Planet

F_1 F_2

(Drawn to scale)

held

this orbit are the points

labeled F_1 and F_2.

Diagram #1

Moon

Planet

F_1 F_2

(Drawn to scale)

Diagram ould be located if they were **#2** going around *Upsilon Andromedae* instead of the Sun. All dist scale.MarsPlanet D

Earth
Venus
Mercury
Star

Line of major axis of orbits

Second planet focus D's of orbit

66 Describe the eccentricity of planet *D*'s orbit relative to the eccentricities of the orbits

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Diagram #3

traveling around a star. Points *A, B, C,* and *D* are four positions of this planet in its orbi

D

Star A C

Foci

Direction of movement

B(Drawn to scale)

Diagram #3

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D

Star A C

Foci

Direction of movement

B(Drawn to scale)

nuary 4 ter in the

orthern isphere

Diagram #4

147,600,000 km

152,600,000 km Sun

(Not drawn to scale)

July 4 summer in

Northern Hemisphe