6. The eccentricity of an ellipse tells us how round or flat it is. Use this formula:

**Eccentricity = distance between the foci**

**length of the major axis**

and calculate the eccentricity of your ellipse. Round your answer to the nearest tenth and record it below and on your sheet.

Distance between the foci = \_\_\_\_6 cm\_\_\_\_ / length of the major axis = \_\_\_\_\_\_\_\_\_\_\_

Eccentricity of 1st ellipse = \_\_\_\_\_\_\_\_\_\_\_

7. On a second sheet of paper, repeat the first six steps of this lab, ***but place the push pins 9 cm apart!***

8. Calculate the eccentricity of your 2nd ellipse (just like you did above):

Distance between the foci = \_\_\_\_9 cm\_\_\_\_ / length of the major axis = \_\_\_\_\_\_\_\_\_\_\_

Eccentricity of 2nd ellipse = \_\_\_\_\_\_\_\_\_\_\_

9. Place the 2 ellipses on your desk next to each other. Which one looks more circular?\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Which one has the greater eccentricity? \_\_\_\_\_\_\_\_\_\_\_\_. Is this one more circular or more flattened? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Finish this statement: “The greater the eccentricity of an ellipse, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”

12. Look at the table below showing the eccentricities of the planets and their orbits:

1. Which planet has the most circular (least

Eccentric orbit)?

1. Which planet has the most eccentric orbit?
2. Compare the eccentricities of your 2 ellipses with that of Earth’s orbit. Which of the 3 is more circular? How do you now?

|  |  |
| --- | --- |
| Mercury | 0.2056 |
| Venus | 0.0068 |
| Earth | 0.0167 |
| Mars | 0.0934 |
| Jupiter | 0.0483 |
| Saturn | 0.0560 |
| Uranus | 0.0461 |
| Neptune | 0.0097 |
| Pluto | 0.2488 |