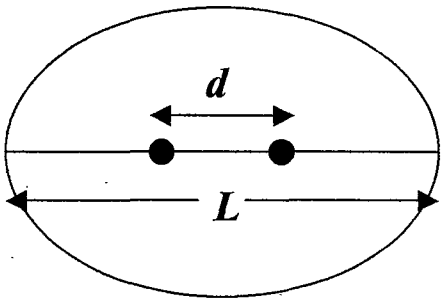
Name: _____ Date: _____ Period: _____
D'Anna

Ellipses and Eccentricity



An ellipse is a closed curve in the shape of an oval. Each ellipse has two foci. The eccentricity of an ellipse is the ratio of the distance between the foci to the length of the major (longer) axis.

$$e = d \div L$$

Using the six ellipses given, complete the following data chart.
Round all values to the ***nearest tenth of a centimeter***.

Ellipse→	A	B	C	D	E	F
Distance between foci (d)						
Length of major axis (L)						
Eccentricity (e)						

Questions:

1. Which ellipse (A, B, or C) is the least round? _____
2. Which ellipse (A, B, or C) is the most round? _____
3. State the relationship between the roundness of an ellipse and its eccentricity.

4. Most comets have very elliptical orbits with eccentricities close to one. Which ellipse (A, B, or C) is the best representation of a comet's orbit? _____
5. What is the eccentricity of Earth's orbit (ESRT)? _____
6. Which ellipse (A, B, or C) most nearly shows Earth's orbit and why?

7. Which ellipse has the same eccentricity as A? How does the shape of that ellipse compare with the shape of ellipse A?
8. For which two ellipses is the distance between the foci 6cm? _____
   Do these two ellipses have the same eccentricity? _____

Refer to the ESRT

9. What geometric shape would result if both foci were located at the center of an ellipse? _____
10. Which planet has the most elliptical orbit? _____
11. Compare the shape of the given ellipses to the orbits of the planets. Which diagram is the best model for the shape of the planets orbits? Why?

ELLIPSE DIAGRAMS