

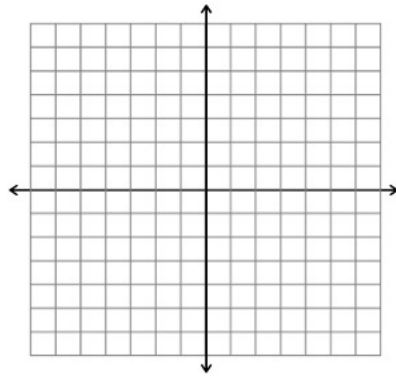
Name: _____

Aim: Practice with Ellipses

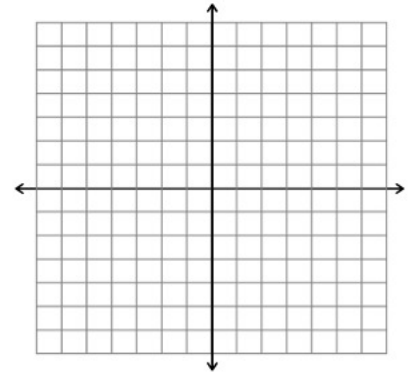
I. Do Now:

- Convert to standard form and graph each ellipse. For each ellipse, state the coordinates of the foci and the eccentricity.

(a) $9x^2 + 25y^2 = 225$



(b) $4x^2 + y^2 - 8x + 4y - 8 = 0$



Recall:
 1. $c^2 = a^2 - b^2$
 where c is the distance from the center to each focus.
 2. Eccentricity: $e = \frac{c}{a}$

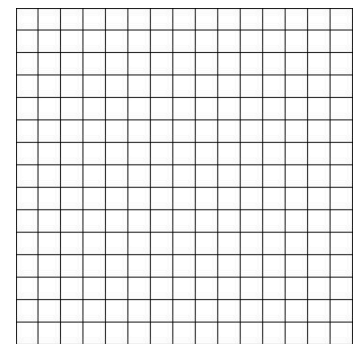
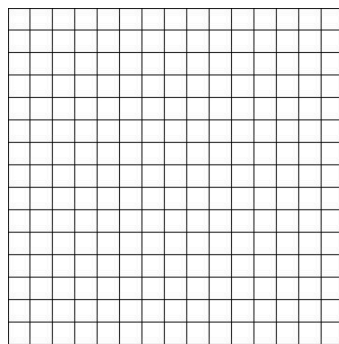
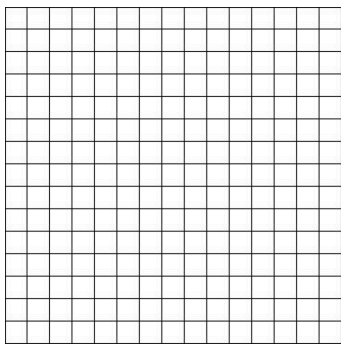
II. Practice:

- Sketch each ellipse on a separate set of axes. State the coordinates of the foci and the eccentricity. How does the value of e relate to the shape of the ellipse?

(a) $\frac{x^2}{9} + \frac{y^2}{9} = 1$

(b) $\frac{x^2}{25} + \frac{y^2}{9} = 1$

(c) $\frac{x^2}{49} + \frac{y^2}{9} = 1$



- Find the center, vertices, foci, and eccentricity of the ellipse, and sketch its graph.

$9x^2 + 4y^2 - 54x + 40y + 37 = 0$

- Find the standard form of the equation of an ellipse with vertices at $(-2, 5)$ and $(-2, -11)$ and which has a focus at $(-2, 1)$.

- Sketch the graph of the equation

$9x^2 + 25y^2 - 36x - 50y + 61 = 0$.

- Find the standard form of the equation of an ellipse with vertices at $(2, 3)$ and $(2, 9)$, and which has an eccentricity of $\frac{2}{3}$. Find the center and the foci, and sketch its graph.