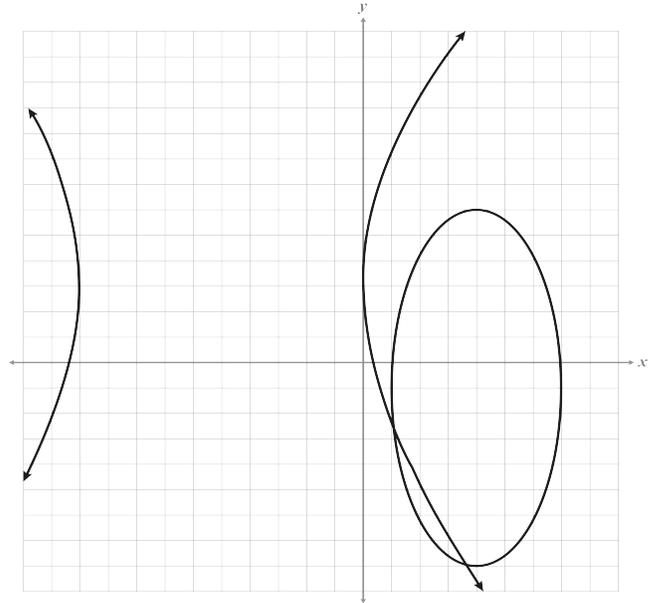


NAME: _____

Test 15 (Lessons 29–30): Ellipses and Hyperbolas

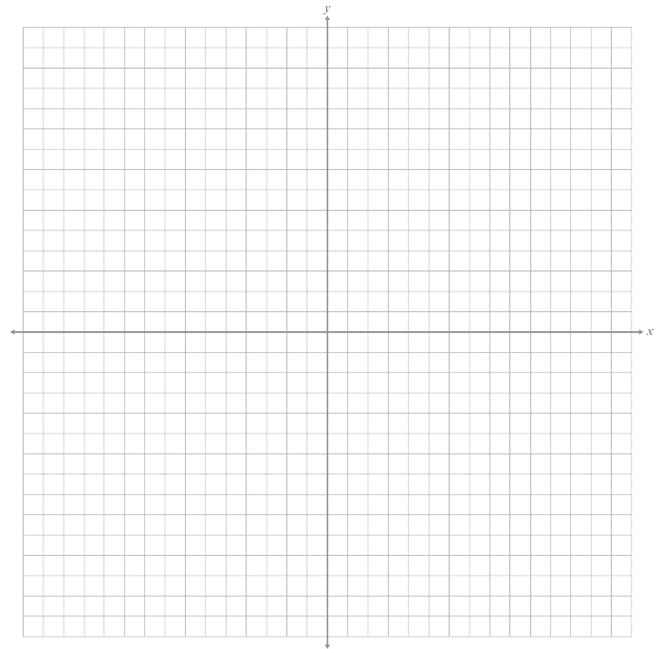
For problems 1–2, write the equation in standard form.

- 1) An ellipse



- 2) A hyperbola

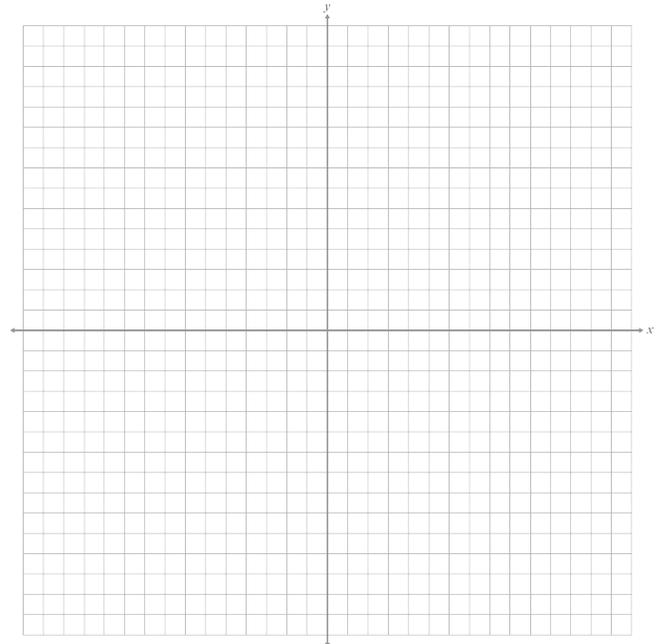
- 3) Write and graph the equation of a horizontal ellipse translated 2 spaces down from the center with a domain of $[-11, 11]$ and a range of $[-8, 4]$.



- 4) Describe how to determine if an ellipse will be horizontal or vertical when only given the equation in standard form.
- 5) Explain how to find the asymptotes when given the equation of a hyperbola in standard form.

- 6) Graph.

$$\frac{(y - 2.5)^2}{4} - \frac{(x + 3)^2}{100} = 1$$



For problems 7–8, name the conic section from the given equation. Explain your reasoning.

7) $4x^2 + 10y = 25y^2 + 5x + 20$

8) $2y^2 + 3y = 4x + 7$

9) Write the equation in standard form. Name the type of conic and its center.

$$4x^2 + 25y^2 + 50y = 66 + 12x$$

- 10) A group of students was told that the equation $5y^2 + 12x + 10y = 3x^2 + 22$ would result in a hyperbola, but when they solved it, their result was an ellipse. Determine the correct equation and explain your reasoning.

Student work (*contains error*)

$$3x^2 + 12x + 5y^2 + 10y = 22$$

$$3(x^2 + 4x + (2^2)) + 5(y^2 + 2y + (1^2)) = 22 + 3(2^2) + 5(1^2)$$

$$3(x + 2)^2 + 5(y + 1)^2 = 22 + 12 + 5$$

$$3(x + 2)^2 + 5(y + 1)^2 = 39$$

$$\frac{3(x + 2)^2}{39} + \frac{5(y + 1)^2}{39} = 1$$