Conics Review Name _____

Pre Calculus B Date _____

1. Identify the center, vertices, foci, and asymptotes (point-slope form) of the hyperbola.

$$\frac{(y+2)^2}{169}-\frac{(x-8)^2}{4}=1$$

2. Identify the vertex, focus, and directrix of the parabola.

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

Use the information provided to write the standard form of each conic.

3. Foci: (19, -3) , (-7, -3)
   Eccentricity = $\frac{13}{5}$

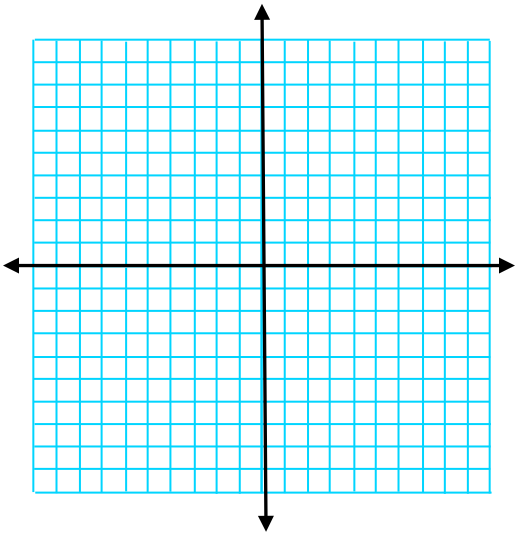
4. Vertices: (3, 3) , (-23, 3)
   Eccentricity = $\frac{5}{13}$

5. Center at (9, 3)
   Vertex at (14, 3)
   Eccentricity = $\frac{\sqrt{61}}{5}$

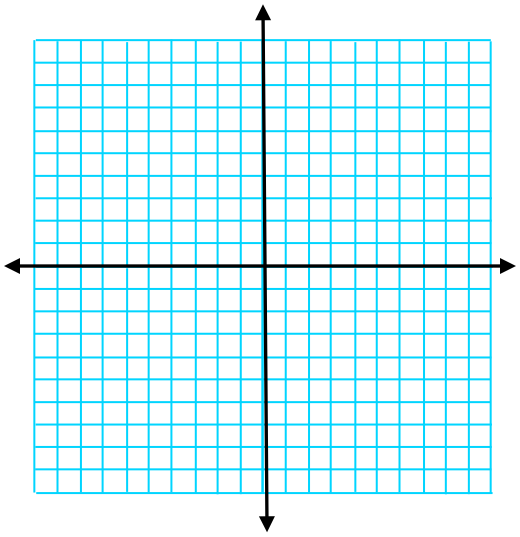
6. Center at (7, -4)
   Co vertex at ($7+\sqrt{10}$, -4)
   Eccentricity = $\frac{\sqrt{35}}{7}$

Classify each conic section, **write its equation in standard form**, and **sketch its graph**. For parabolas, identify the **vertex, focus, and directrix**. For ellipses and hyperbolas, identify the **center, vertices, foci, and eccentricity**.

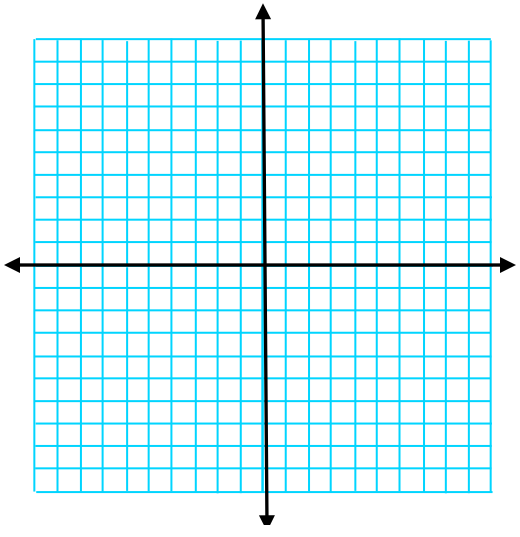
7. $32y+4y^2-338x-443=-169x^2$



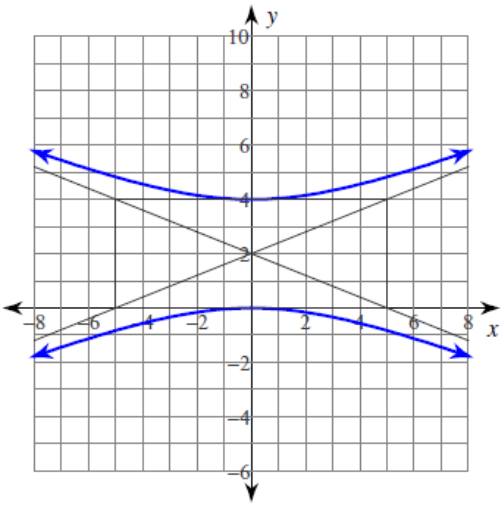
8. $y^2+8x+6y+25=0$



9. $4x^2-y^2+8x+4y-4=0$

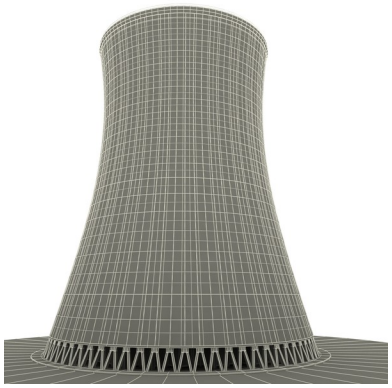


10. Use the graph to write the standard form of the hyperbola.

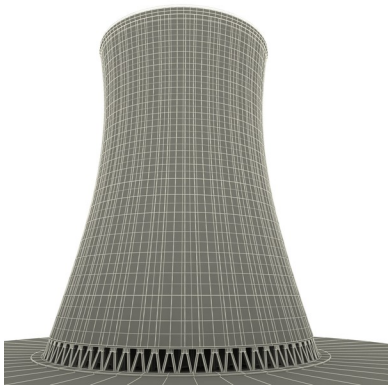


11. A nuclear cooling tower is a hyperboloid, that is, a hyperbola rotated around its conjugate axis. Suppose the hyperbola used to generate the hyperboloid modeling the shape of the cooling tower has an eccentricity of $\frac{7}{6}$.

    a. If the cooling tower is 192 feet wide at its narrowest point, determine an equation of the hyperbola used to generate the hyperboloid.



    b. If the tower is 525 feet tall and the top is 200 above the center, what is the diameter of the base of the tower?



12. An arch over a bridge is semi-elliptical with its longer axis horizontal. The base of the arch is 30 feet wide and the highest part of the arch is 10 feet above the highway. Find the height of the arch 6 feet from the center.

13. An elliptically shaped garden is surrounded by a pathway that is 2 feet wide. The garden is 15 feet long and 8 feet wide. Find the equation describing the pool and the equation describing the deck.