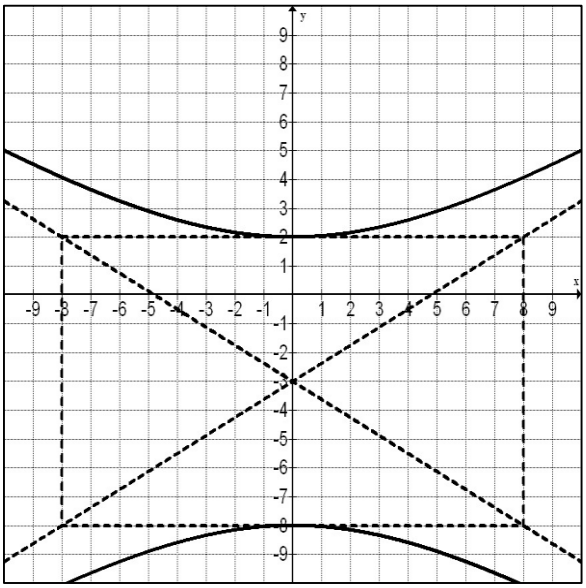
Practice – Hyperbolas

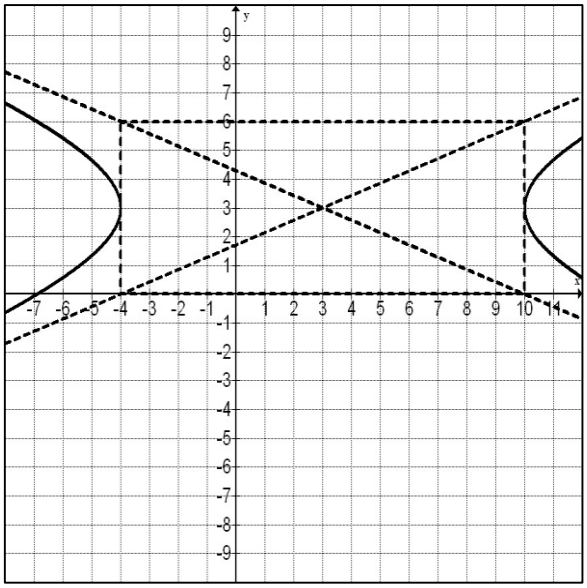
Name _____ Date _____ Period_____

Write the equation in standard form for each hyperbola.

1.



2.



Find the critical values for each hyperbola and then graph.

3. $\frac{x^2}{64} - \frac{y^2}{36} = 1$

Center _____

Vertices _____

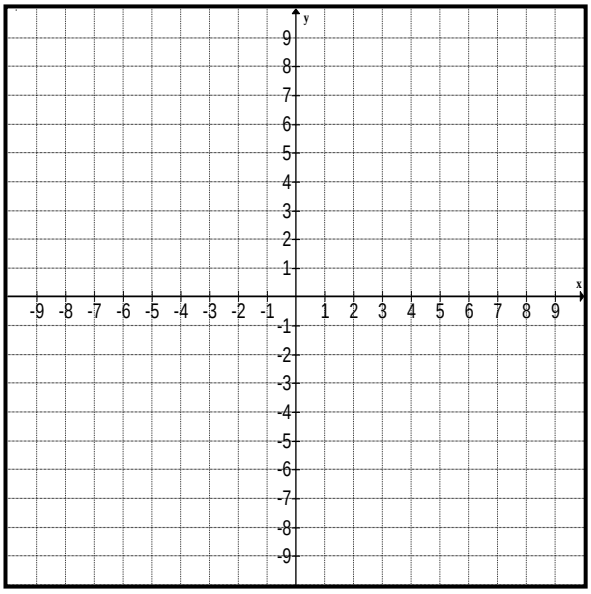
Co-vertices _____

Foci _____

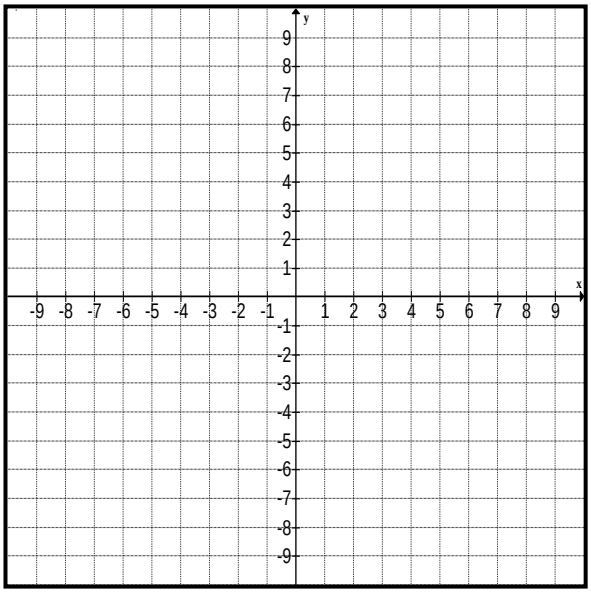
Slopes of Asymptotes _____

Domain _____

Range_____



4. $\frac{y^2}{25} - \frac{x^2}{81} = 1$



Center _____

Vertices _____

Co-vertices _____

Foci _____

Slopes of Asymptotes _____

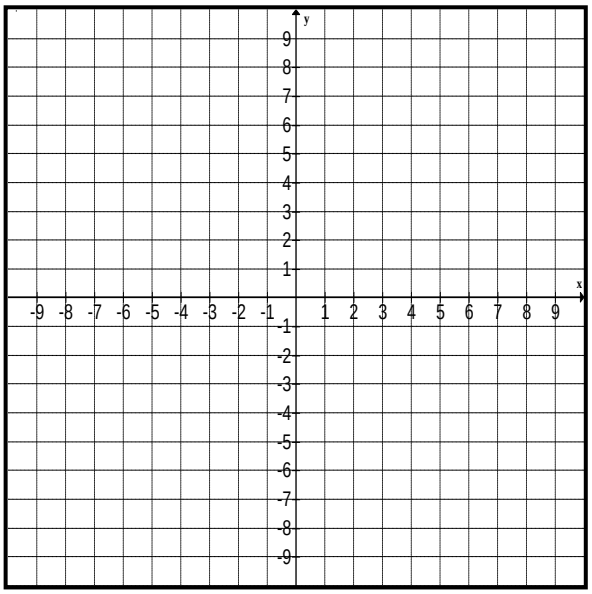
Domain _____

Range_____

Domain _____

Range_____

5. $\frac{(y-1)^2}{64} - \frac{(x+2)^2}{36} = 1$



Center _____

Vertices _____

Co-vertices _____

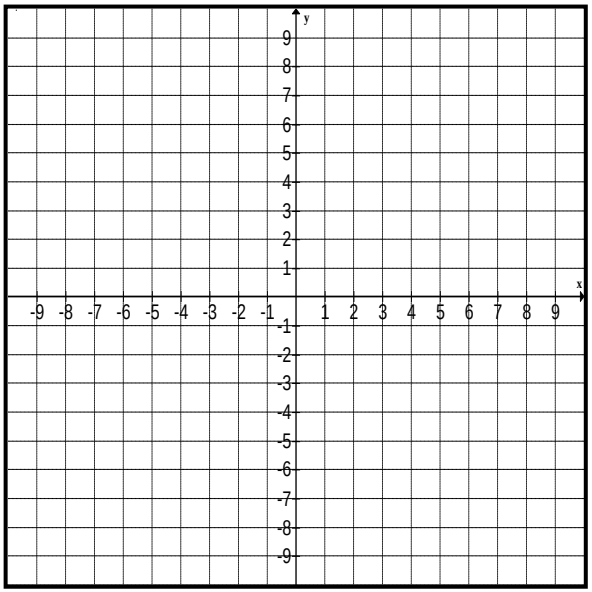
Foci _____

Slopes of Asymptotes _____

Domain _____

Range_____

6. $\frac{(x+5)^2}{25} - \frac{(y-3)^2}{16} = 1$



Center _____

Vertices _____

Co-vertices _____

Foci _____

Slopes of Asymptotes _____

Domain _____

Range_____

7. What happens to the graph of $\frac{x^2}{a^2}-\frac{y^2}{16}=1$ as the value of *a* increases? What happens to the graph of $\frac{x^2}{16}-\frac{y^2}{b^2}=1$ as the values of *b* increase?

8. What is the length of the conjugate (minor) axis of the hyperbola with equation $\frac{x^2}{49}-\frac{y^2}{121}=1$?

A 7
B 11
C 14
D 22

9. Find an equation of a hyperbola with vertices $(0,\pm 2)$ and foci $(0,\pm 4)$.

10. The hyperbola is centered at (2, -3) and has a horizontal transverse (major) axis. The distance between the vertices is 14 and the length of the conjugate (minor) axis is 4. Find the equation of the hyperbola.

11. Given $-4(y-1)^2+9(x-3)^2=36$. Write the equation in standard form and sketch a graph.

12. Write the equation of the hyperbola centered at the origin with vertex at (6, 0) and asymptotes with equations $y=\pm\frac{2}{3}x$

13. What is the slope of one of the asymptotes of the graph of $36=9x^2-4y^2$?