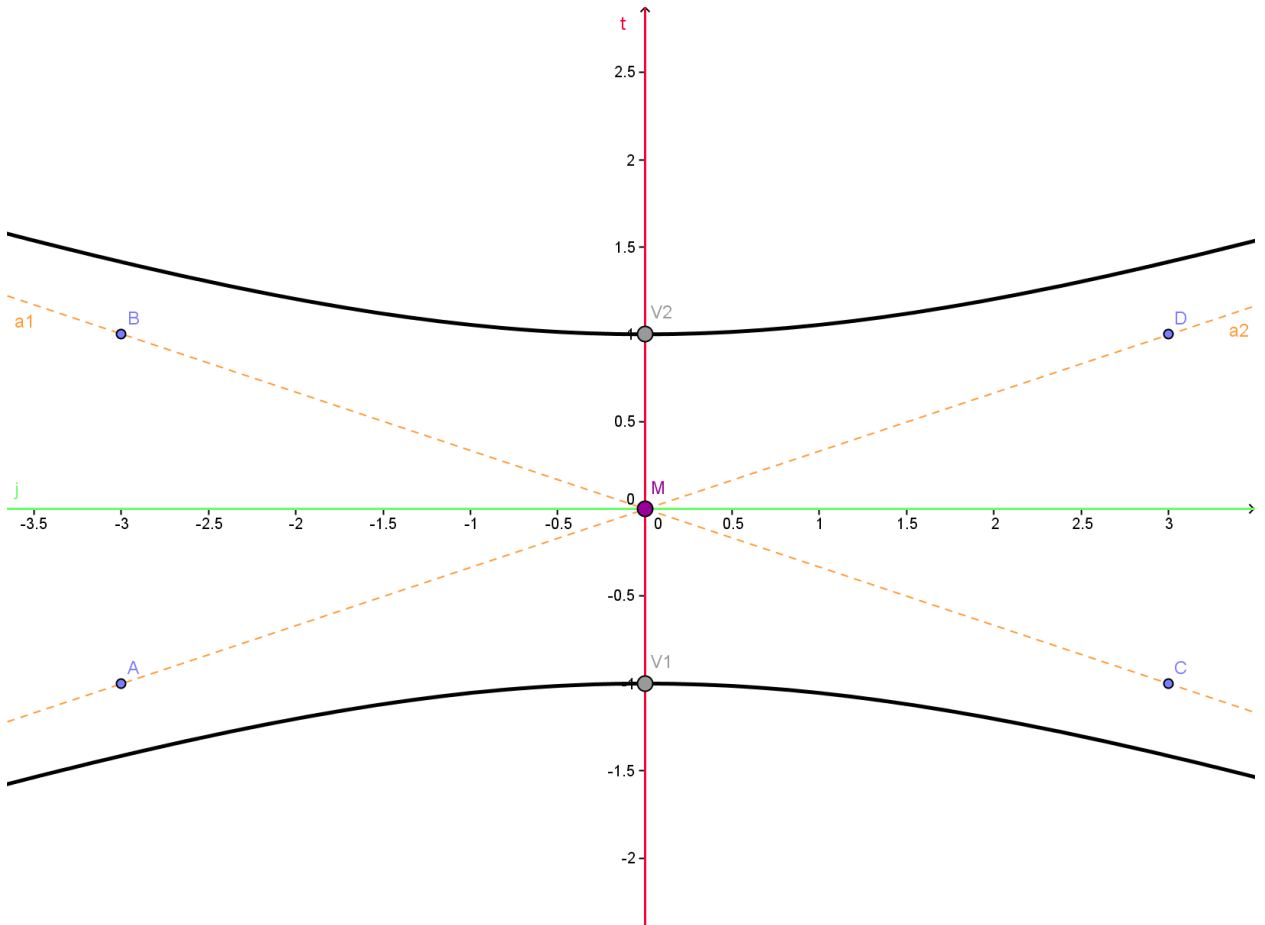


DIRECTIONS: Identify the center, direction of the transverse axis, vertices, foci, and slopes of asymptotes for the following hyperbolas. Use the back to graph the hyperbola.

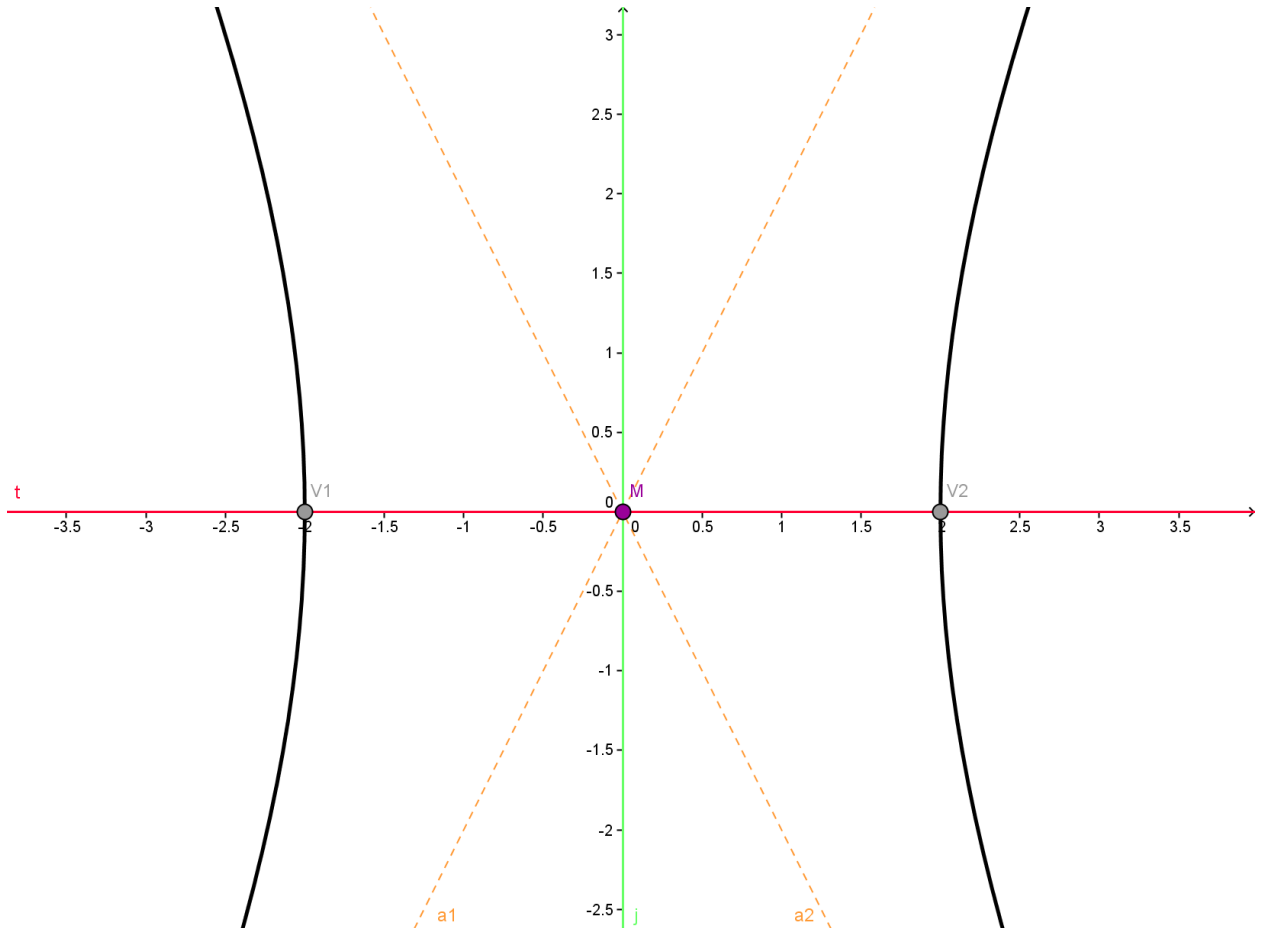
1. $\frac{y^2}{1} - \frac{x^2}{9} = 1$

Center: $(0, 0)$
Transverse Axis: Vertical
Vertices: $(0, 1)$ & $(0, -1)$
Foci: $(0, \sqrt{10})$ & $(0, -\sqrt{10})$
Slopes of Asymptotes: $\pm \frac{1}{3}$



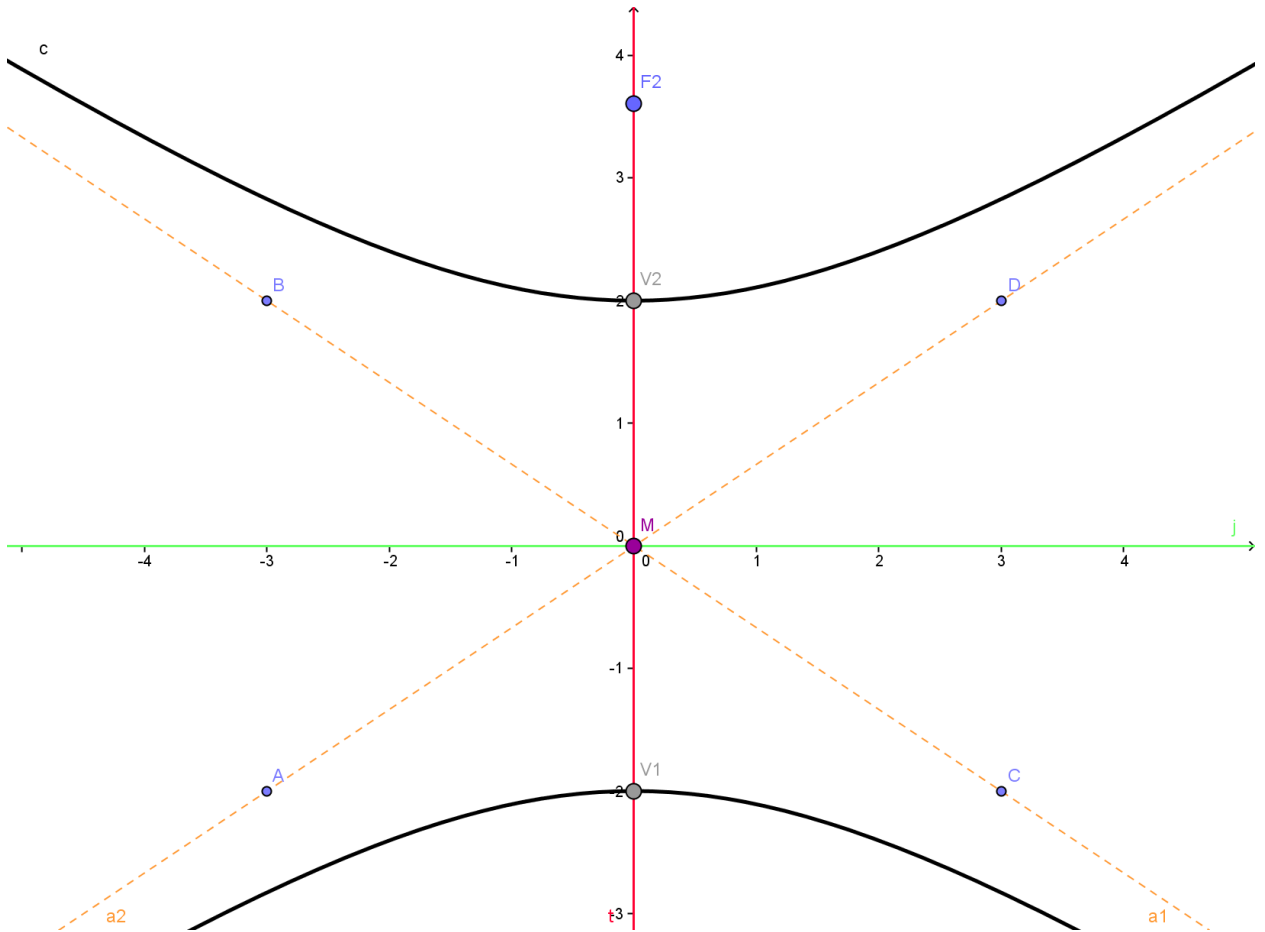
$$2. 4x^2 - y^2 = 16$$

Center: $(0, 0)$
Transverse Axis: Horizontal
Vertices: $(-2, 0)$ & $(2, 0)$
Foci: $(2\sqrt{5}, 0)$ & $(-2\sqrt{5}, 0)$
Slopes of Asymptotes: ± 2



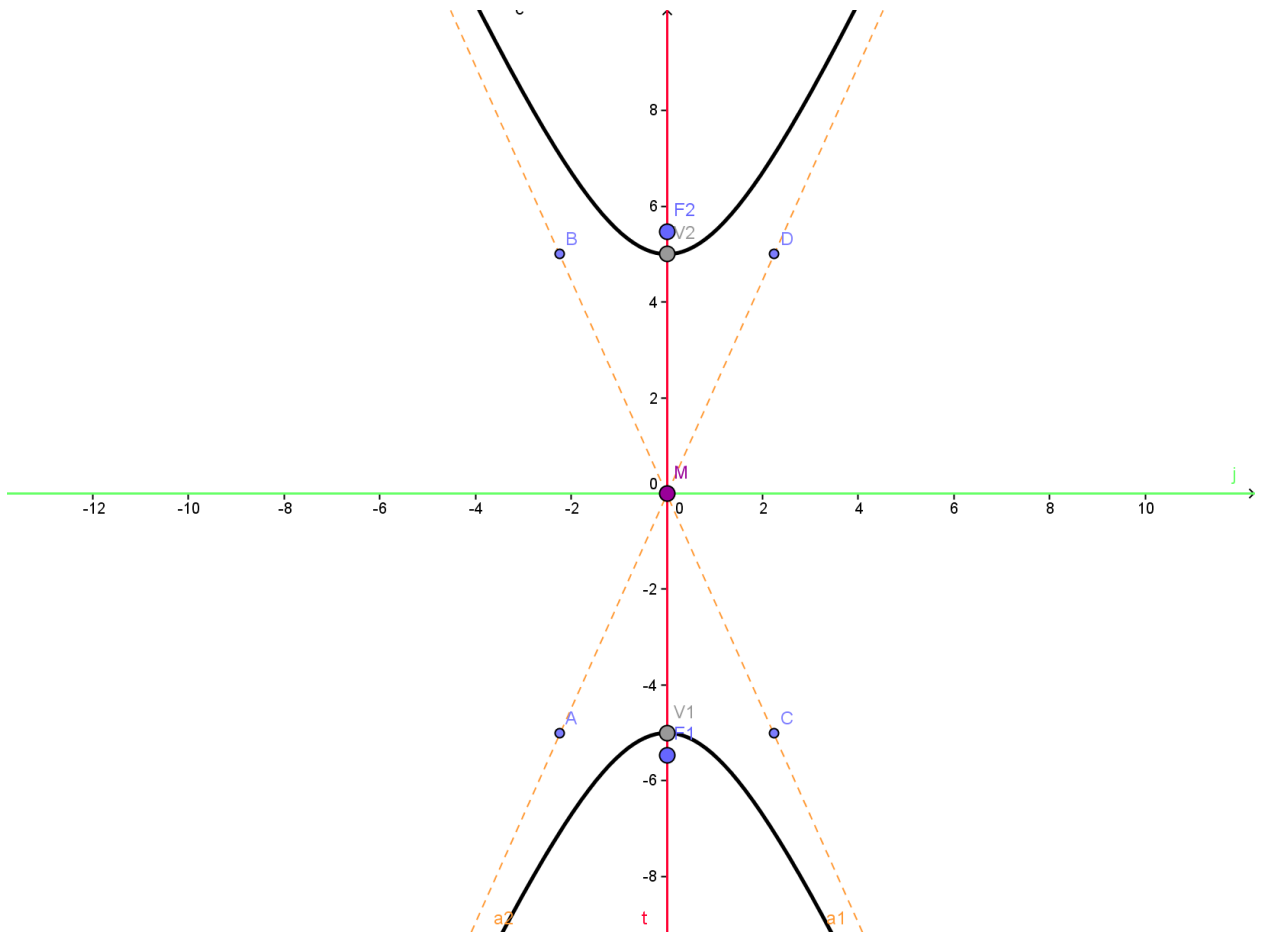
3. $4x^2 - 9y^2 + 36 = 0$

Center: $(0, 0)$
Transverse Axis: Vertical
Vertices: $(0, 2)$ & $(0, -2)$
Foci: $(0, \sqrt{13})$ & $(0, -\sqrt{13})$
Slopes of Asymptotes: $\pm \frac{2}{3}$



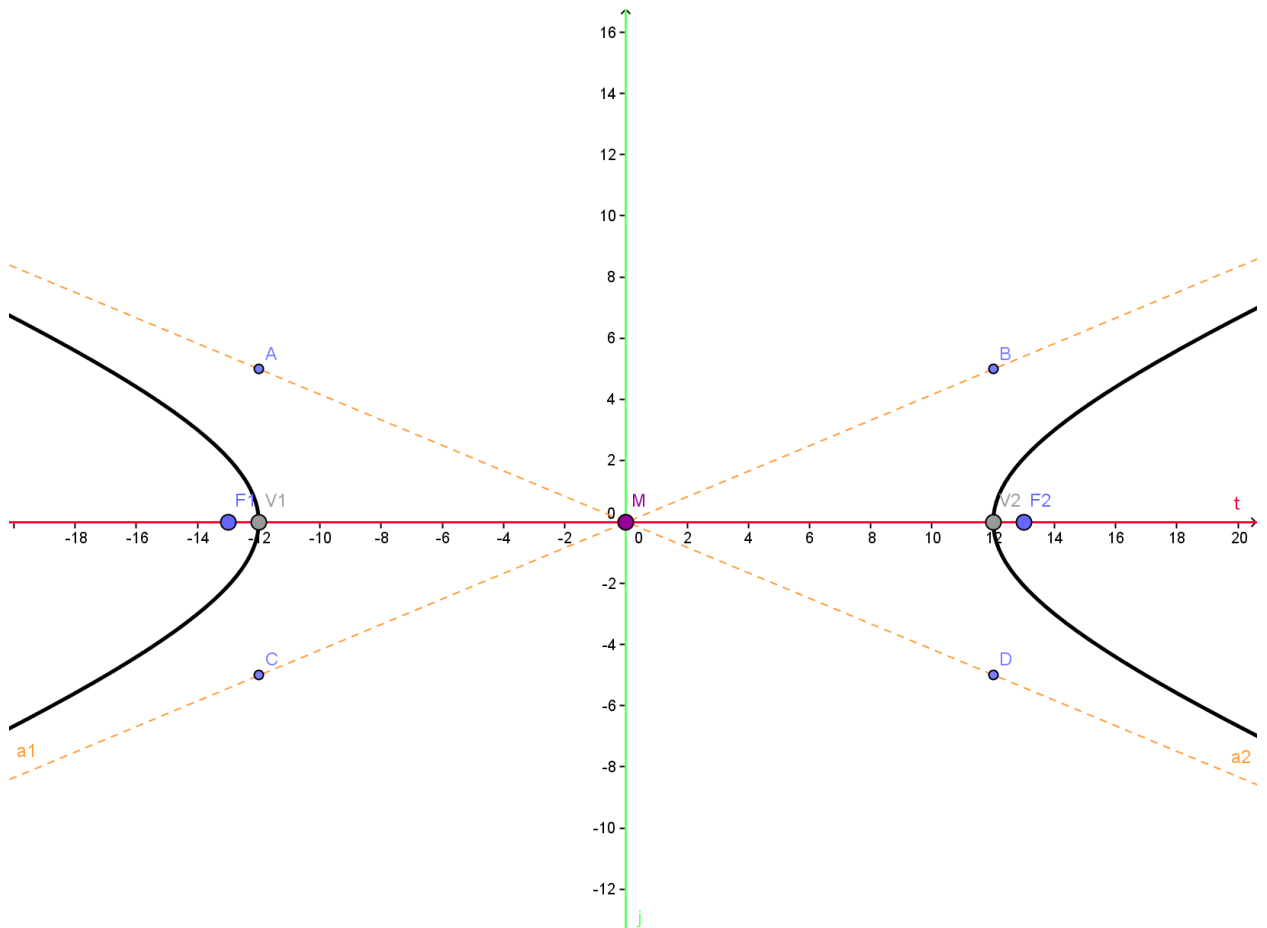
4. $y^2 = 5x^2 + 25$

Center: $(0, 0)$
 Transverse Axis: Vertical
 Vertices: $(0, 5)$ & $(0, -5)$
 Foci: $(0, \sqrt{30})$ & $(0, -\sqrt{30})$
 Slopes of Asymptotes: $\pm\sqrt{5}$



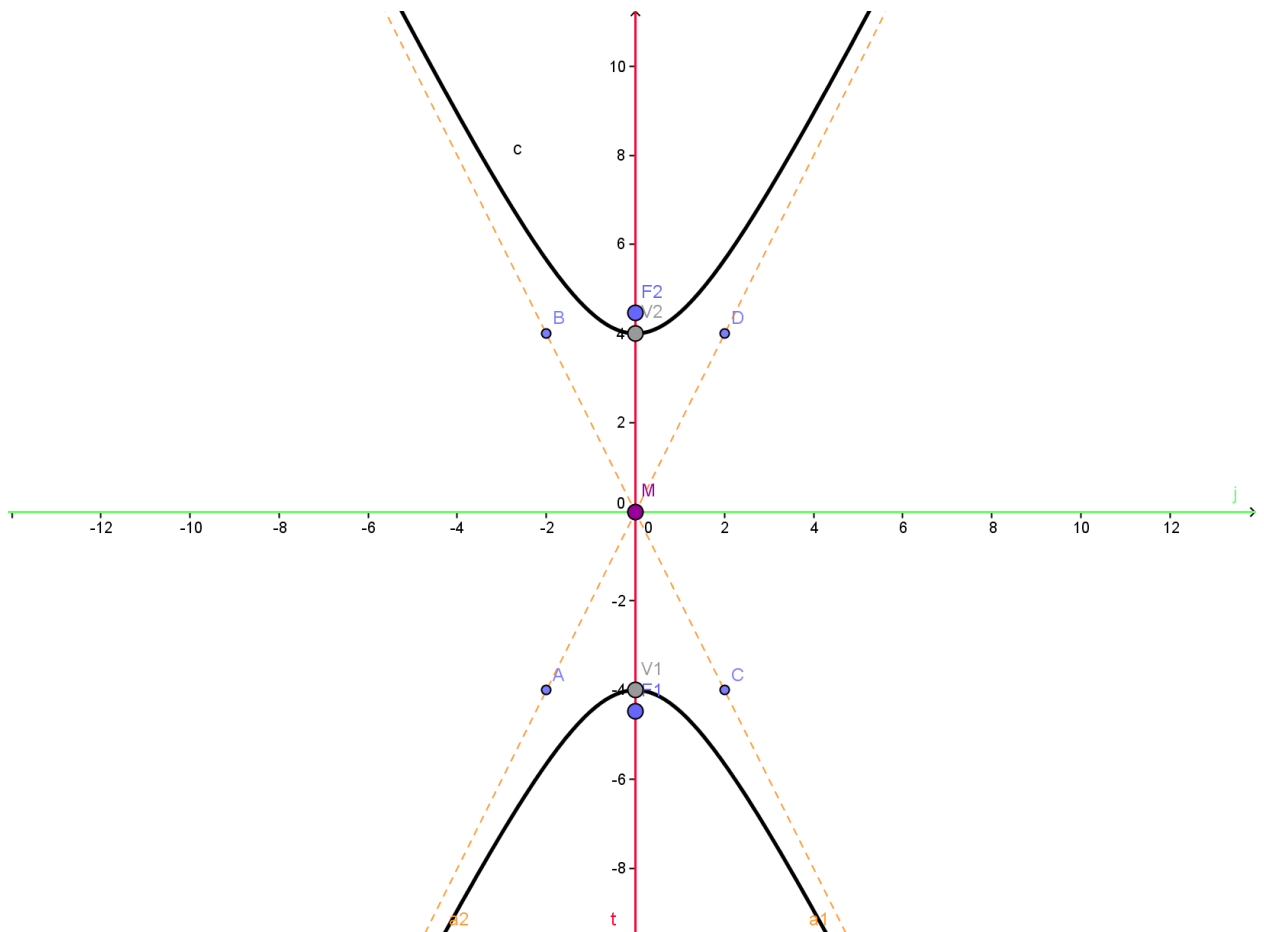
5. $25x^2 - 144y^2 = 3600$

Center: $(0, 0)$
Transverse Axis: Horizontal
Vertices: $(12, 0)$ & $(-12, 0)$
Foci: $(13, 0)$ & $(-13, 0)$
Slopes of Asymptotes: $\pm \frac{5}{12}$



6. $16x^2 - 4y^2 + 64 = 0$

Center: $(0, 0)$
 Transverse Axis: Vertical
 Vertices: $(0, 4)$ & $(0, -4)$
 Foci: $(0, 2\sqrt{5})$ & $(0, -2\sqrt{5})$
 Slopes of Asymptotes: ± 2



DIRECTIONS: Find an equation of the described hyperbola.

7. Foci: $(0, -8)$ & $(0, 8)$

Difference of focal radii: 10

$$\frac{y^2}{25} - \frac{x^2}{39} = 1$$

8. Foci: $(-4, 0)$ & $(4, 0)$

Difference of focal radii: 4

$$\frac{x^2}{4} - \frac{y^2}{12} = 1$$

