

Equation of a Hyperbola with center (h,k)

$$\frac{(x - \textcolor{red}{h})^2}{\textcolor{green}{a}^2} - \frac{(y - \textcolor{blue}{k})^2}{\textcolor{purple}{b}^2} = 1$$

horizontal

$$\frac{(y - \textcolor{blue}{k})^2}{\textcolor{green}{a}^2} - \frac{(x - \textcolor{red}{h})^2}{\textcolor{purple}{b}^2} = 1$$

vertical

Graph the following hyperbola

$$\frac{x^2}{\textcolor{violet}{9}} - \frac{y^2}{\textcolor{green}{16}} = 1$$

Horizontal/ Vertical

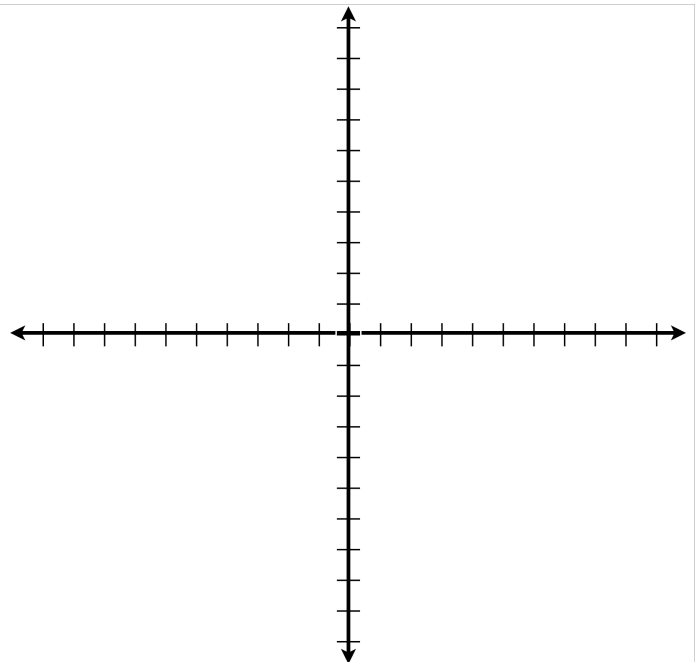
Center

Slope of Asymptotes

Vertices

Co-Vertices

Foci



Graph the following hyperbola

$$\frac{(y-1)^2}{16} - \frac{(x-2)^2}{9} = 1$$

Horizontal/Vertical

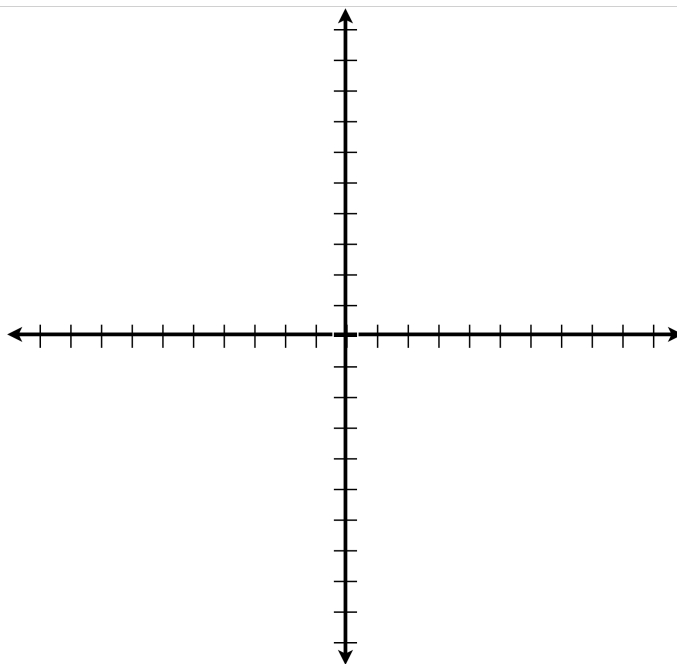
Center

Slope of Asymptotes

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Graph the following hyperbola

$$\frac{(y-3)^2}{4} - \frac{(x+3)^2}{36} = 1$$

Horizontal/Vertical

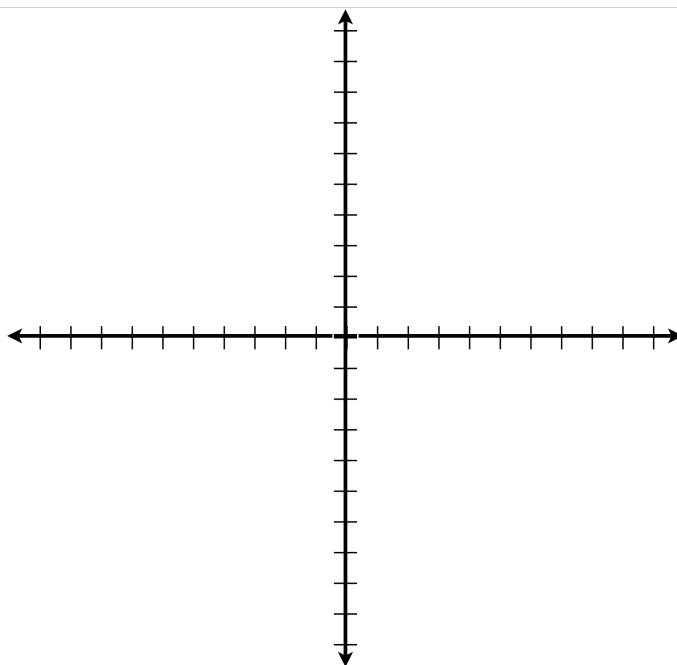
Center

Slope of Asymptotes

Vertices

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Foci



Graph the following hyperbola

$$\frac{(x + 1)^2}{16} - \frac{(y - 2)^2}{32} = 1$$

Horizontal/Vertical

Center

Slope of Asymptotes

Vertices

Co-Vertices

Foci

