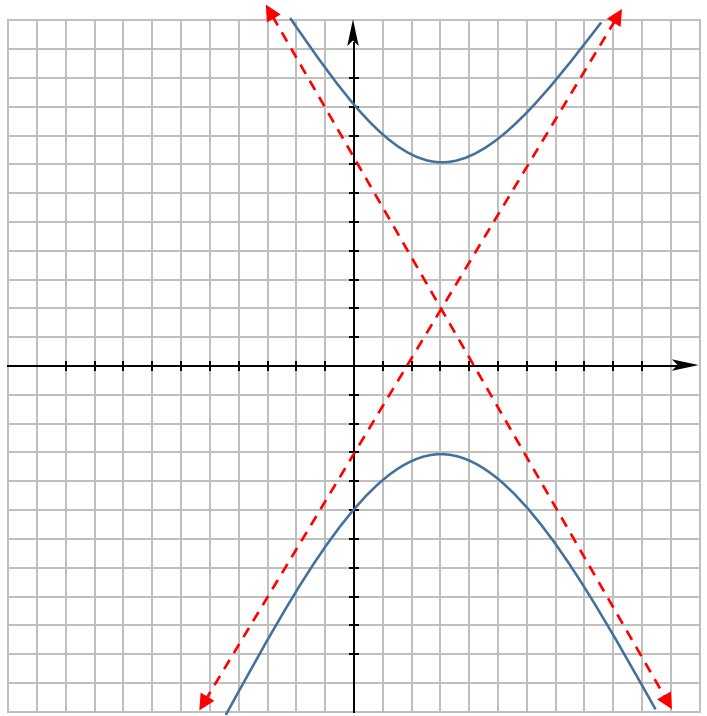


9.4 – INTRO TO HYPERBOLAS

OBJECTIVE:

- 1) Graph hyperbolas in the coordinate plane.

HYPERBOLA:



GENERAL EQUATION:

SKETCH:

Center:

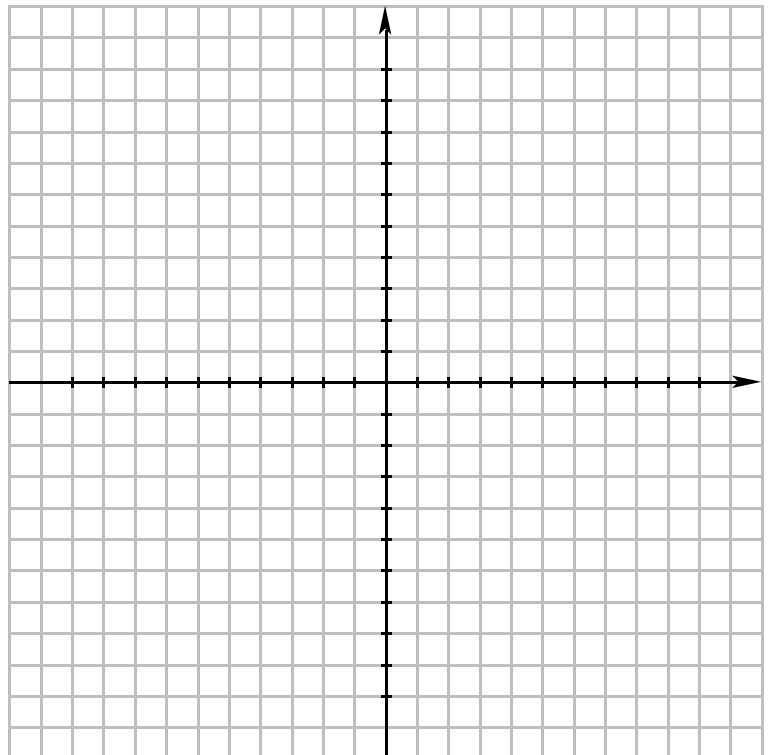
Slope of asymptote:

$r_x =$

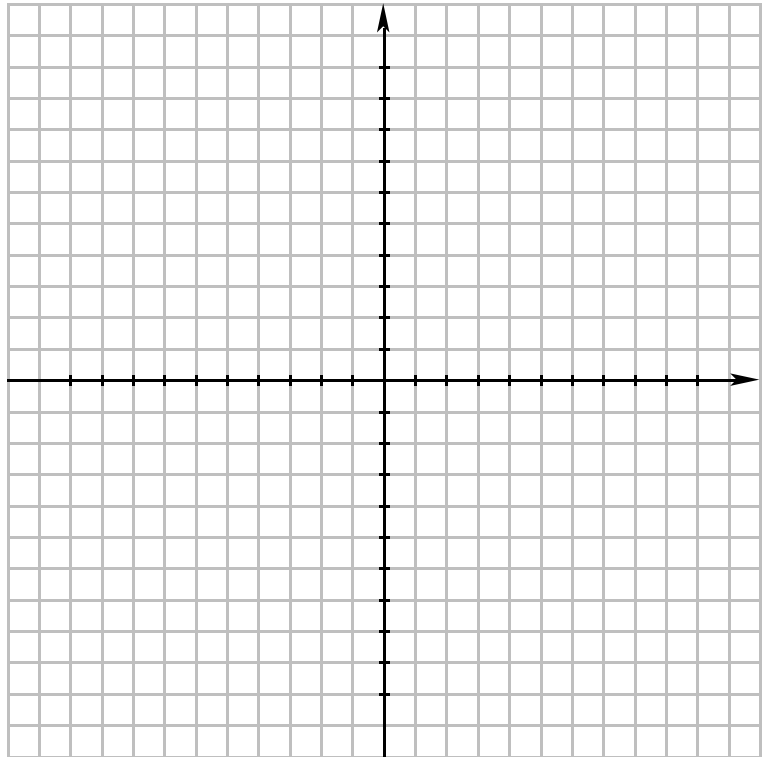
$$F^2 = r_x^2 + r_y^2$$

$r_y =$

1. $\frac{y^2}{36} - \frac{x^2}{49} = 1$



$$2. \frac{(x-3)^2}{16} - \frac{(y+2)^2}{36} = 1$$



$$3. \frac{(x+5)^2}{4} + \frac{(y-4)^2}{9} \leq 1 \quad 0 \leq 1 \quad \text{Test: } (-5, 4) \quad 0 \leq 1 \text{ (shade where center is)}$$

\curvearrowright center: $(-5, 4)$
 \curvearrowright vertices: $(-5, 7)$ $(-5, 1)$
 $r_x = 2$ Foci: $(-5, 4 + \sqrt{13})$ $(-5, 4 - \sqrt{13})$
 $r_y = 3$

$$F^2 = 4 + 9$$

$$F = \sqrt{13}$$

$$m = \pm \frac{3}{2}$$

Asymptotes:
 $y - 4 = \pm \frac{3}{2}(x + 5)$

