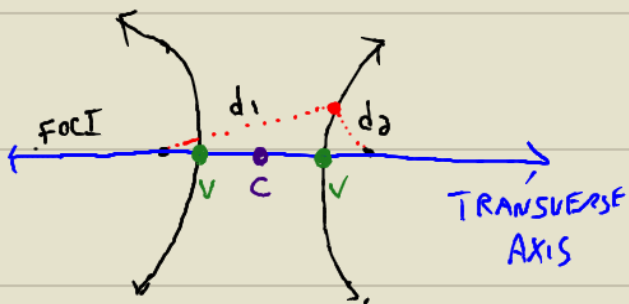


HYPERBOLA



$$d_1 - d_2 = \pm 2a$$

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

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

(LEFT)

$$\begin{aligned} h=0 & \quad k=0 \\ \frac{(x-0)^2}{(3)^2} - \frac{(y-0)^2}{(1)^2} &= 1 \\ \downarrow & \quad \downarrow \\ a=3 & \quad b=1 \end{aligned}$$

FIND C

$$b^2 = c^2 - a^2$$

$$1^2 = c^2 - 3^2$$

$$1 = c^2 - 9$$

$$1 + 9 = c^2$$

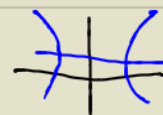
$$10 = c^2$$

$$c = \sqrt{10}$$

$$a=3 \quad b=1 \quad c=\sqrt{10} \quad h=0 \quad k=0$$

CENTER: $(h, k) = (0, 0)$

TRANSVERSE AXIS: X-AXIS



Foci: $(h+c, k) \quad (h-c, k)$

$$(0+\sqrt{10}, 0) \quad (0-\sqrt{10}, 0)$$

$$(\sqrt{10}, 0) \quad (-\sqrt{10}, 0)$$

VERTICES: $(h+a, k) \quad (h-a, k)$

$$(0+3, 0) \quad (0-3, 0)$$

$$(3, 0) \quad (-3, 0)$$

ASYMPTOTES: $y-k = \pm \frac{b}{a}(x-h)$

$$y-0 = \pm \frac{1}{3}(x-0)$$

$$y = \pm \frac{1}{3}x$$

$$y = \pm \frac{1}{3}x + 0$$

$$m = \frac{1}{3} \quad m = -\frac{1}{3}$$

