

Hyperbola Graphing WS

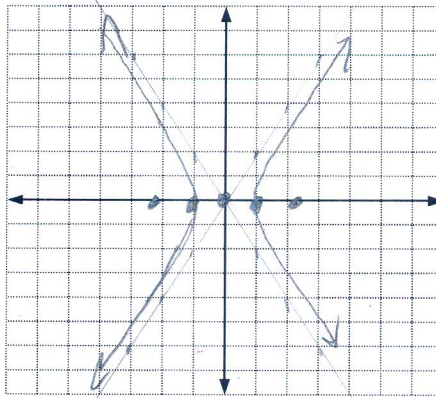
Name Fuston

Graph each Hyperbola. Find the center, vertices, foci, and equation of the asymptotes for each hyperbola whose equation is given.

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

Center (0, 0)  
 Vertices (-1, 0) (1, 0)  
 Foci (±√5, 0)  
 Asymptotes y = ±2x

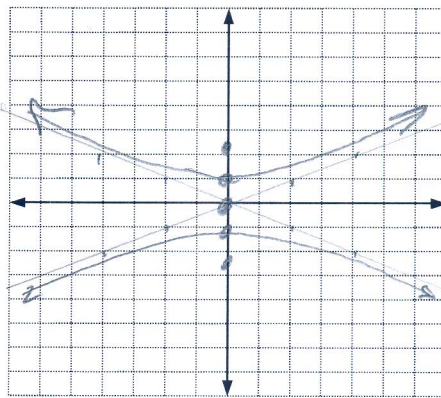
a=1  
 b=2  
 c=√5



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

Center (0, 0)  
 Vertices (0, 1) (0, -1)  
 Foci (0, ±√5)  
 Asymptotes y = ±½x

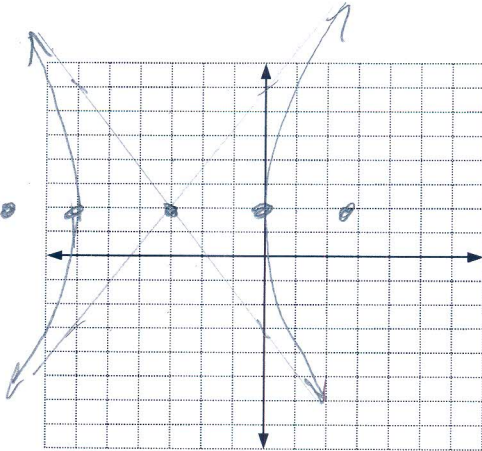
a=1  
 b=2  
 c=√5



3.  $\frac{(x+3)^2}{9} - \frac{(y-2)^2}{25} = 1$

Center (-3, 2)  
 Vertices (-6, 2) (0, 2)  
 Foci (-3 ± √34, 2)  
 Asymptotes y - 2 = ± 5/3(x + 3)

a=3  
 b=5  
 c=√34



vertical

$$4. \frac{(y+3)^2}{9} - \frac{(x-4)^2}{16} = 1$$

Center  $(4, -3)$

Vertices  $(4, 0) (4, -6)$

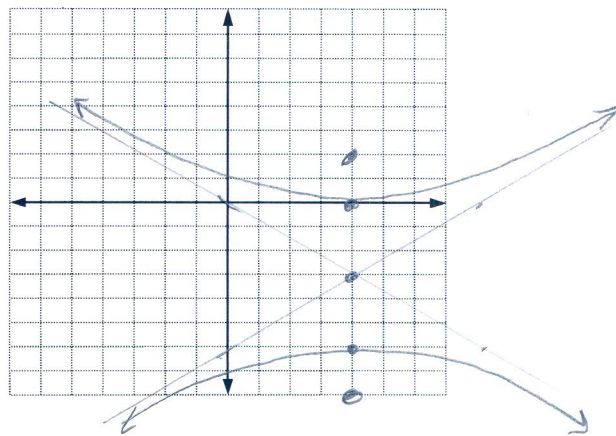
Foci  $(4, 2) (4, -8)$

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

$$a=3$$

$$b=4$$

$$c=5$$



horizontal

$$5. \frac{(x+1)^2}{9} - \frac{(y-2)^2}{64} = 1$$

Center  $(-1, 2)$

Vertices  $(-4, 2) (2, 2)$

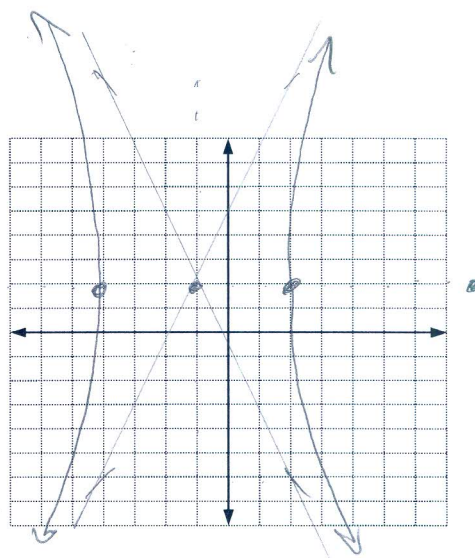
Foci  $(-1 \pm \sqrt{73}, 2)$

Asymptotes  $y-2 = \pm \frac{8}{3}(x+1)$

$$a=3$$

$$b=8$$

$$c=\sqrt{73}$$



vertical

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

Center  $(0, 2)$

Vertices  $(0, 8) (0, -4)$

Foci  $(0, 2 \pm 2\sqrt{10})$

Asymptotes  $y-2 = \pm 3(x)$

$$a=6$$

$$b=2$$

$$c=2\sqrt{10}$$

