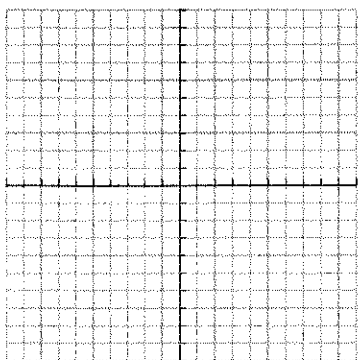


Conics Worksheet 3: Hyperbolas

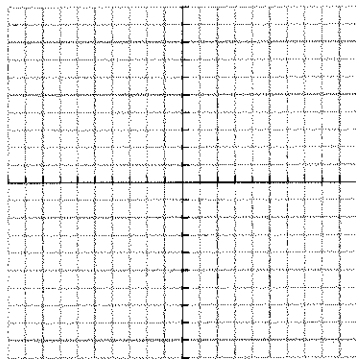
Name: _____

I. Write each of the following equations in graphing form (if not in that form already) and give the key information (center, vertices, foci and asymptotes).

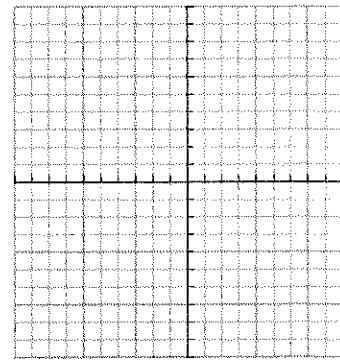
1) $\frac{x^2}{25} - \frac{y^2}{9} = 1$



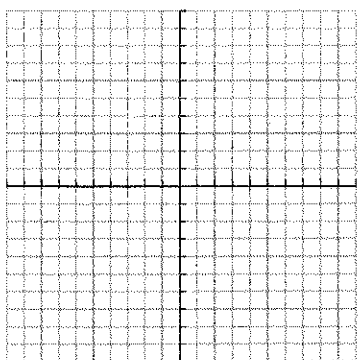
2) $\frac{(y+2)^2}{4} - \frac{x^2}{25} = 1$



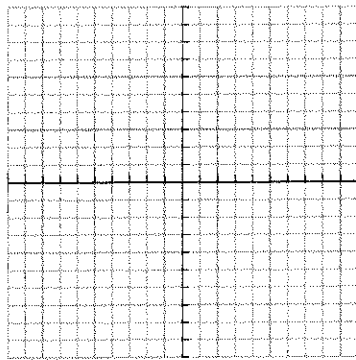
3) $x^2 - \frac{y^2}{9} = 1$



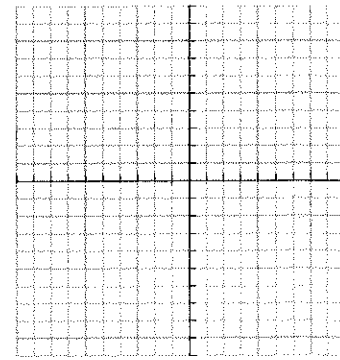
4) $16y^2 - 9x^2 = 144$



5) $(x-4)^2 - (y+2)^2 = 16$



6) $y^2 - x^2 + 4y - 21 = 0$



II. Convert each equation to graphing form. Give the key information.

7) $x^2 - y^2 - 6x = 0$

8) $16x^2 - y^2 + 32x + 6y + 39 = 0$

9) $4y^2 - 25x^2 - 32y + 164 = 0$

10) $9y^2 - 4x^2 - 18y + 24x - 63 = 0$

III. Write the equation of the hyperbola in graphing form from the given information.

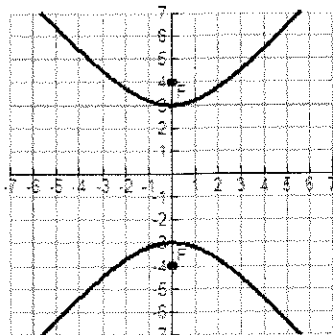
11) Vertices at $(2, 0)$ and $(-2, 0)$; foci at $(3, 0)$ and $(-3, 0)$

12) Vertices at $(9, -3)$ and $(-5, -3)$; foci at $(2 \pm \sqrt{53}, -3)$

13) Center at the origin, vertex at $(-3, 0)$ and an asymptote with the equation $y = \frac{5}{3}x$

14) Vertices at $(0, 6)$ and $(0, -6)$; and an asymptote with the equation $y = 3x$

15) From the graph: a)



b)

