Name _____ Date _____ Period _____

DIRECTIONS: For #1-2, identify the equation (#2 only), center, direction of the transverse axis, verticies, foci, and slopes of asymptotes for the following hyperbolas. Use the provided grids to graph the hyperbolas (use a straightedge for the asymptotes).

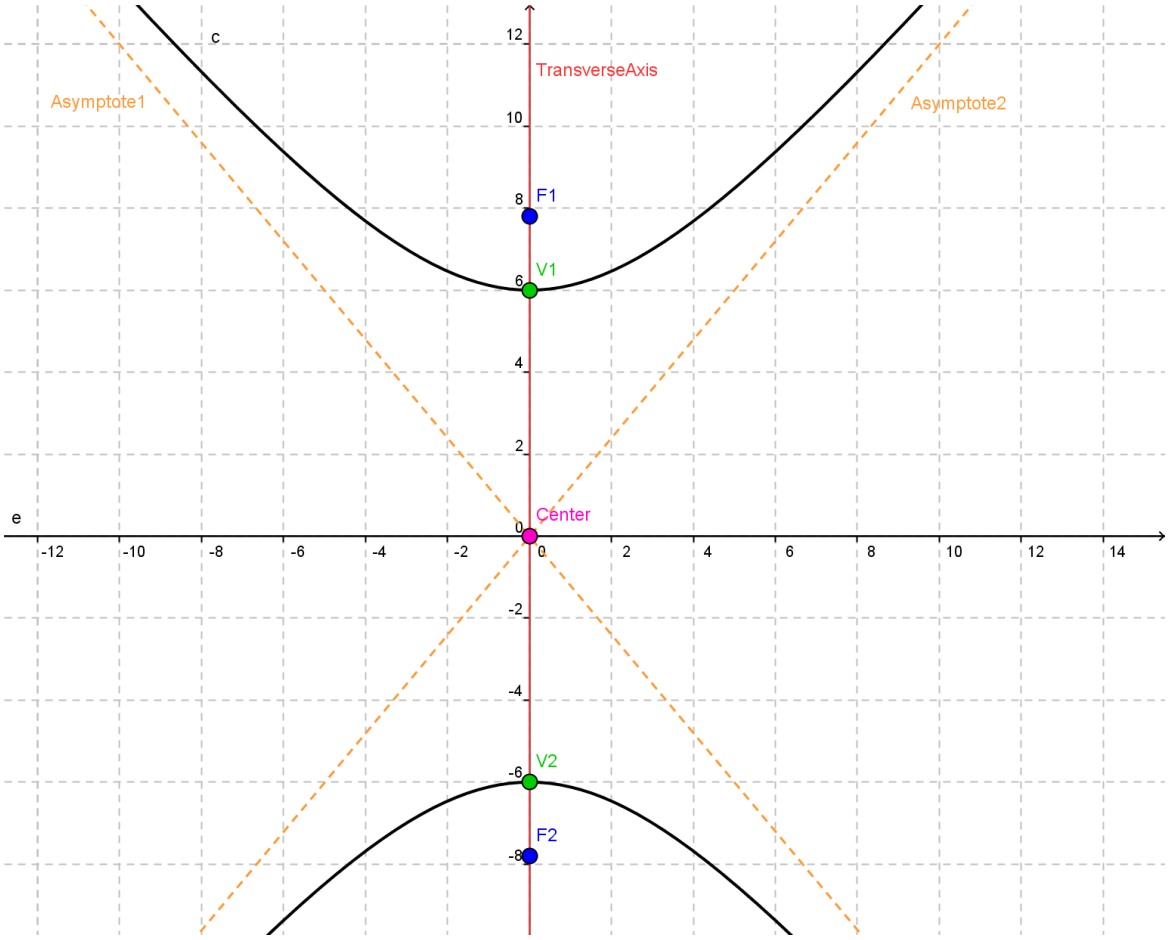
1. $\frac{y^2}{36} - \frac{x^2}{25} = 1$

Center $(0, 0)$ Transverse axis VERTICAL

Verticies $(0, 6)$, $(0, -6)$ or $(0, \pm 6)$

Foci $(0, \sqrt{61})$, $(0, -\sqrt{61})$ or $(0, \pm\sqrt{61})$

Slope of asymptotes $\pm\frac{6}{5}$



[Notice that this graph counts by twos]

2. $25y^2 - 4x^2 + 100 = 0$

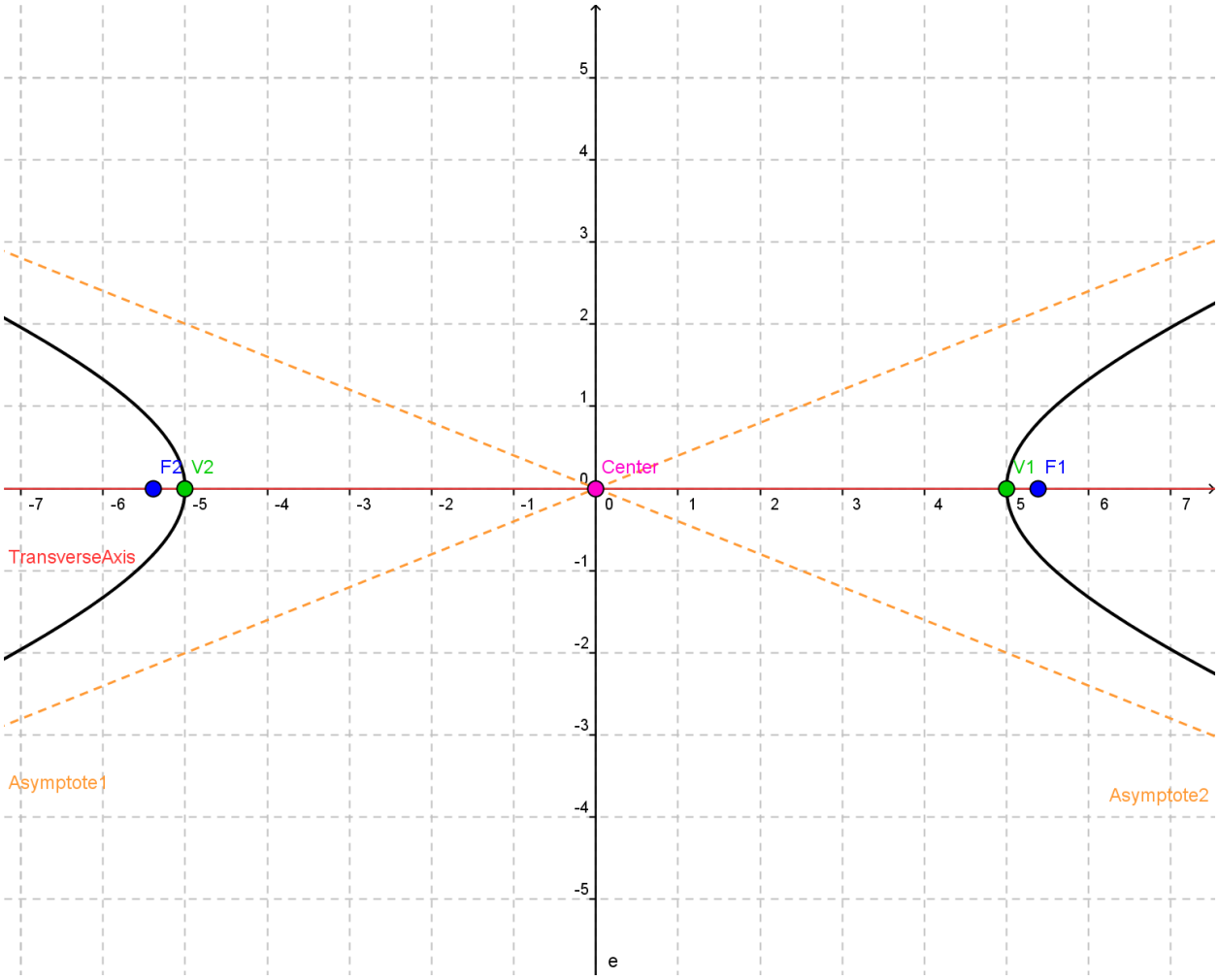
Equation $\frac{x^2}{25} - \frac{y^2}{4} = 1$

Center $(0, 0)$ Transverse axis HORIZONTAL

Verticies $(5, 0)$, $(-5, 0)$ or $(\pm 5, 0)$

Foci $(\sqrt{29}, 0)$, $(-\sqrt{29}, 0)$ or $(\pm\sqrt{29}, 0)$

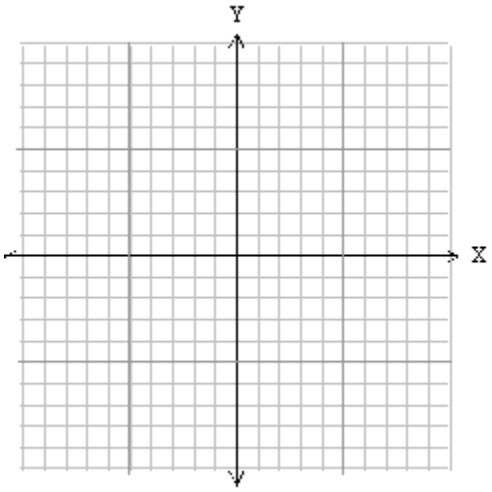
Slope of asymptotes $\pm\frac{2}{5}$



DIRECTIONS: For #3-4, write equations for the described hyperbolas in the provided blanks. Graph grids are provided for your convenience- you are not required to use them.

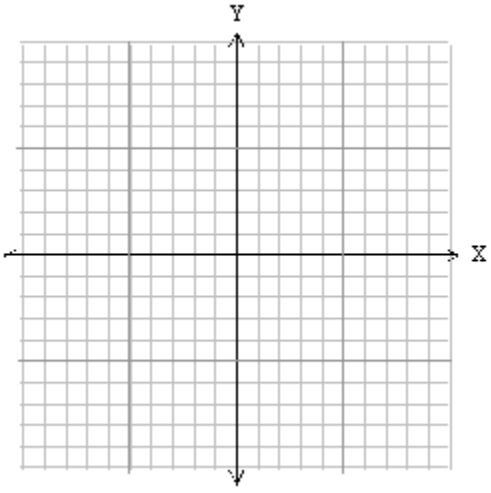
3. Foci: $(-3, 0), (3, 0)$
Difference of focal radii: 4

$$\frac{x^2}{4} - \frac{y^2}{5} = 1$$



4. Foci: $(2, 4), (-4, 4)$
Difference of focal radii: 2

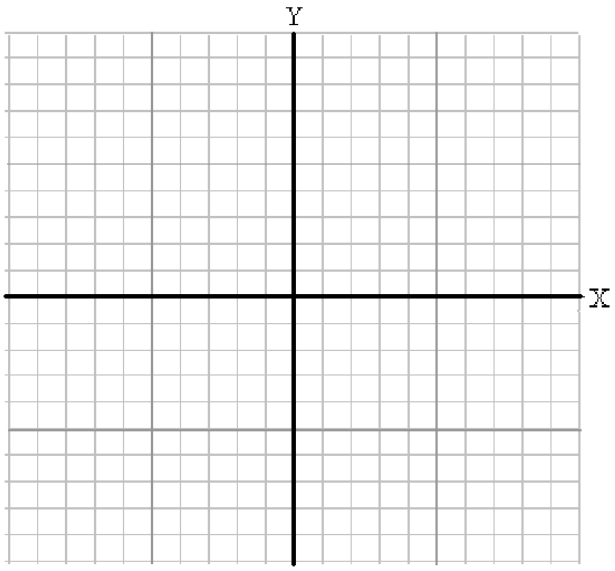
$$\frac{(x+1)^2}{1} - \frac{(y-4)^2}{8} = 1$$



DIRECTIONS: For #5, determine the center and foci of the hyperbola described by the equation. A graph grid is provided for your convenience- you are not required to use it.

5. $\frac{(x+2)^2}{25} - \frac{(y-3)^2}{11} = 1$

Center $(-2, 3)$ Foci $(-8, 3)$, $(4, 3)$



DIRECTIONS: For #6-9, identify the conic sections (circle, ellipse, hyperbola, parabola) from their equations.

6. $9x^2 - 4y^2 + 36x - 24y - 36 = 0$

hyperbola

7. $9x^2 + 4y^2 + 36x - 24y - 36 = 0$

ellipse

8. $y^2 - 2y - 4x + 9 = 0$

parabola

9. $2x^2 + 2y^2 + 8x + 12y + 8 = 0$

circle