

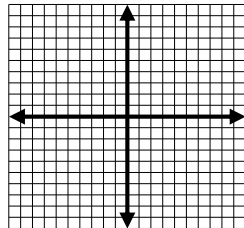
Conics Review

Calculator OK

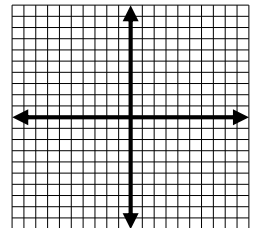


1. Write an equation for each conic section described below. Use the graph to help you (if you need it!)

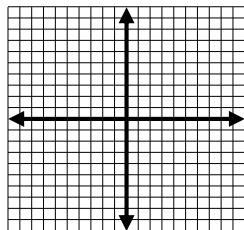
a. Focus (3, -4) and directrix of $x = 9$



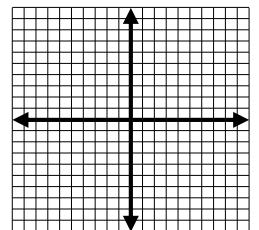
b. Of a circle whose diameter has endpoints located at (-2, -5) and (6, 3).



c. Of the ellipse with a center at (1, -8), a focus at (1, -2), and the end of the major axis at (1, 0)

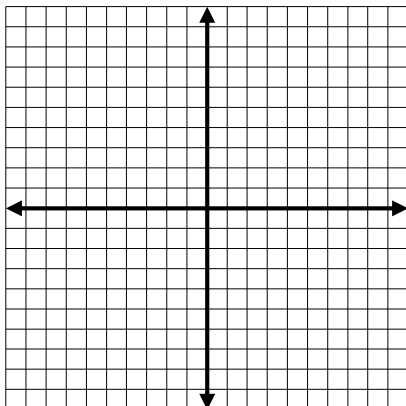


d. Of a hyperbola with foci at (6, 0) and (-6, 0); transverse axis length = 8.

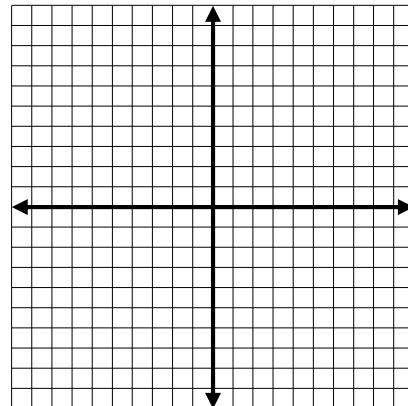


2. Graph the conic section on the grid given. Identify features such as the vertex, equation of the directrix, focus point, focal width (parabola); center, endpoints of the major/minor axis and foci (ellipse); radius and center (circle); center, vertices, slope of the asymptotes and foci (hyperbola).

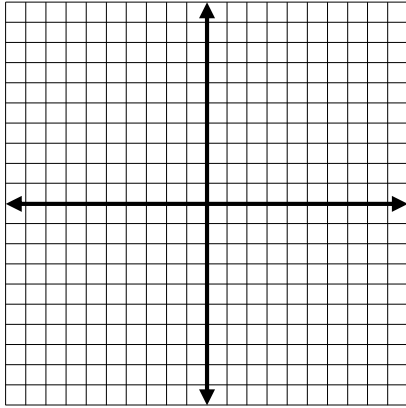
a. $(x-2)^2 + (y-4)^2 = 16$



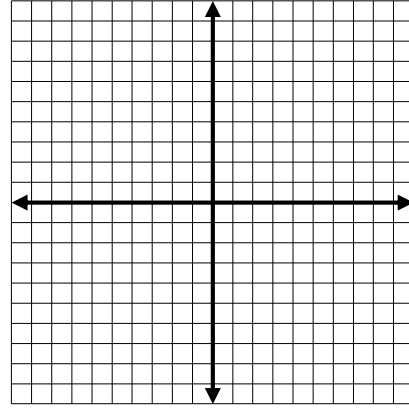
b. $(x+2)^2 = 12(y-1)$



c. $\frac{x^2}{25} + \frac{(y+4)^2}{16} = 1$



d. $4(y-2)^2 - (x+3)^2 = 16$



3. Write parametric equations for each of the following.

- a. An ellipse whose center is at $(-2, 3)$ and whose major axis (vertical) has length 10 and minor axis of length 2.

- b. Write the parametric equations of a circle whose center is at $(-1, 4)$ and has radius of length 4.

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

4. Eliminate the parameter:

a. $x = 3 + 4 \cos t$; $y = -1 + 6 \sin t$

b. $x = -2 + 3 \sec t$, $y = 1 + 4 \tan t$

5. For each expanded equation, write down the name of the shape and then put it into general form.

a. $9y^2 - 25x^2 - 36y - 150x - 414 = 0$

b. $3x^2 - 6x = 6y - 15$