

# Conic Flyer Worksheet

1. In the dropdown menu of Conic Flyer, choose Circle. Move each of the three sliders back and forth, one by one, and watch how the graph changes. How do each of the following variables affect the shape of the graph?

$r$ : \_\_\_\_\_

\_\_\_\_\_

$h$ : \_\_\_\_\_

\_\_\_\_\_

$k$ : \_\_\_\_\_

\_\_\_\_\_

2. Now switch to the ellipse and manipulate the new set of sliders. Do any of the variables have the same effect? What effects do the new variables,  $a$  and  $b$ , have on the graph?

$a$ : \_\_\_\_\_

\_\_\_\_\_

$b$ : \_\_\_\_\_

\_\_\_\_\_

$h$ : \_\_\_\_\_

\_\_\_\_\_

$k$ : \_\_\_\_\_

\_\_\_\_\_

3. Repeat this procedure with a parabola (either vertical or horizontal is fine) and try to determine the effect of  $a$ .

$a$ : \_\_\_\_\_

\_\_\_\_\_

4. Repeat this procedure with a hyperbola (either vertical or horizontal is fine) and try to determine the effect of  $a$  and  $b$ .

$a$ : \_\_\_\_\_

\_\_\_\_\_

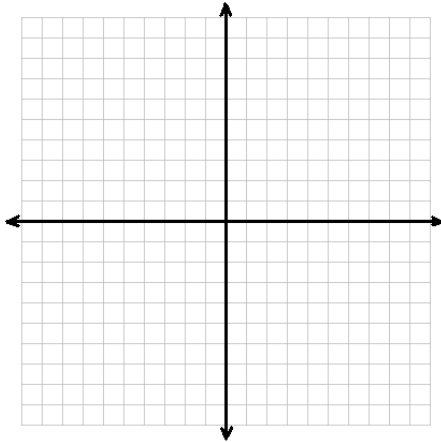
$b$ : \_\_\_\_\_

\_\_\_\_\_

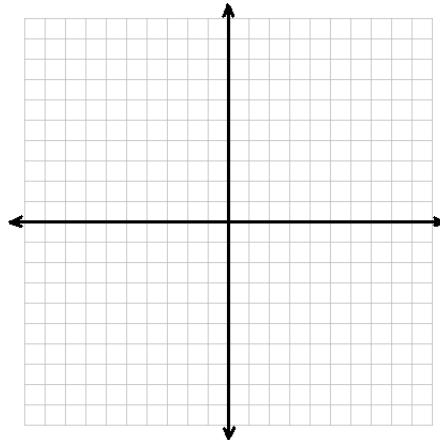
5. Do the results you got from the applet support the geometric derivation that you learned for the Conic Sections? If so, how?

6. For each of the following equations, try to predict what the conic section will look like without substituting any points, and graph your conjecture on the graphs provided.

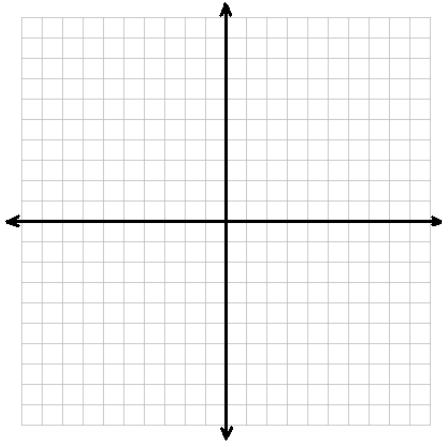
a.  $9 = (x - 2)^2 + (y - 1)^2$



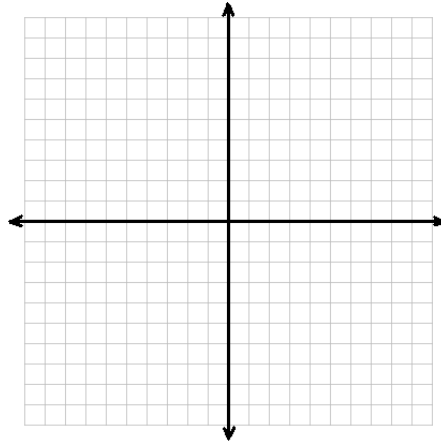
b.  $1 = \frac{(x - 2)^2}{4} + \frac{(y - 1)^2}{9}$



c.  $y = \frac{(x-3)^2}{8} + 4$



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



7. Graph the equations on Conic Flyer. Compare your prediction to the graph on Conic Flyer. Was your graph correct? If not, what sorts of errors did you make?