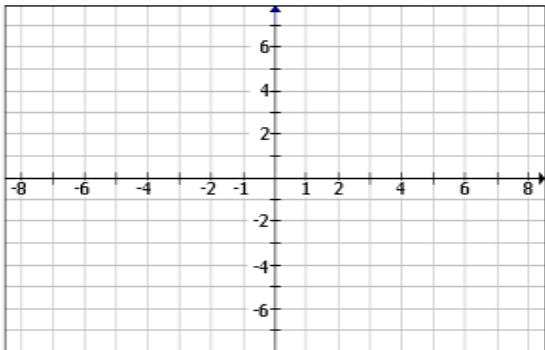


- (1) Find and label the vertices, foci, and graph the ellipse after putting it into one of the two forms for that equation.

$$4x^2 + 9y^2 + 54y - 16x + 61 = 0$$

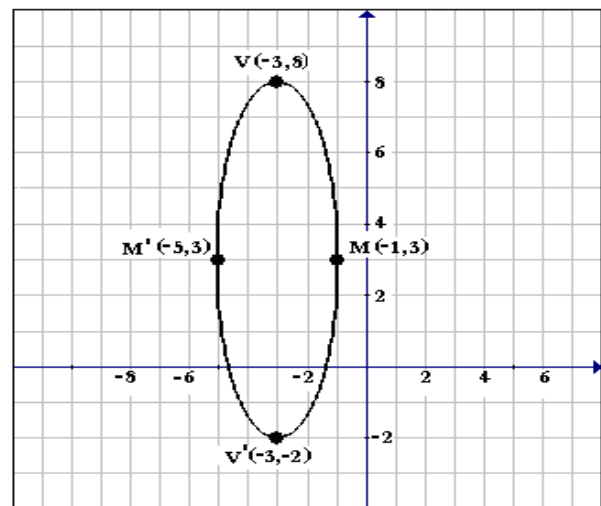
Center (,), $a^2 = \underline{\hspace{2cm}}$, $b^2 = \underline{\hspace{2cm}}$

$c =$



V(,) , V'(,)
F(,) , F'(,)

- (1) Find the equation for the ellipse shown in the figure below by using one of two the forms for that equation. The points labeled below are V(-3, 8), V'(-3, -2), M(-1, 3) and M'(-5, 3)



[Note: M and M' are the ends of the minor axis; V and V' are the Vertices and are the ends of the major axis]

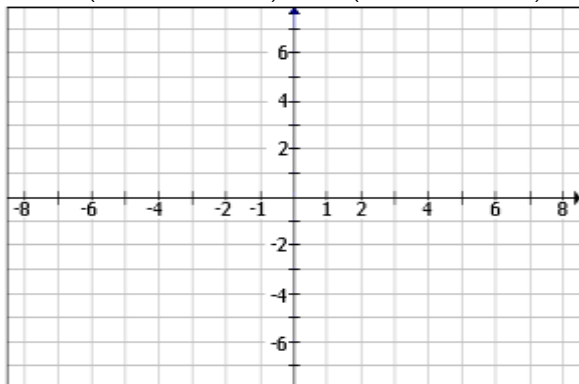
- (3) Find and label the vertices, foci, and graph the Ellipse.

$$\frac{y^2}{9} + \frac{x^2}{16} = 1$$

$a^2 = \underline{\hspace{2cm}}$, $b^2 = \underline{\hspace{2cm}}$
 $a = \underline{\hspace{2cm}}$, $b = \underline{\hspace{2cm}}$
 $c =$

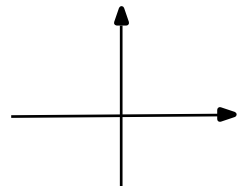
Center (,)

V(,) , V'(,)
F(,) , F'(,)



- (4) Find the equation for the ellipse that has its center at the origin and satisfies the given conditions and put it into one of the two forms.

Foci ($\pm 5, 0$) , Vertices ($\pm 8, 0$)



[Note: M and M' are the ends of the minor axis; V and V' are the Vertices and are the ends of the major axis]

[Note: M and M' are the ends of the minor axis; V and V' are the Vertices and are the ends of the major axis]

ExtraCredit:.....

- (1) **What** simple change could you make in the equation in the above **Problem #3** to make it an equation of an hyperbola?
- (2) In what equation ,the ellipse or hyperbola, is the denominator " a^2 " determined by size?

- (3) **Why** do dogs walk around in a circle before laying down?