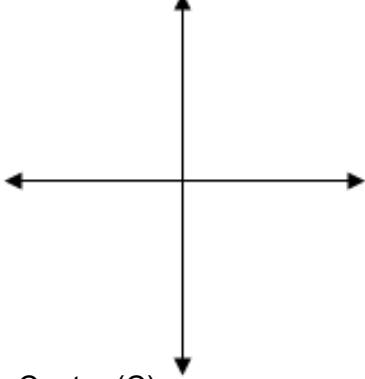


### Horizontal Ellipse

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$



Center (C) \_\_\_\_\_

Vertices (V) \_\_\_\_\_

Co-vertices (CV) \_\_\_\_\_

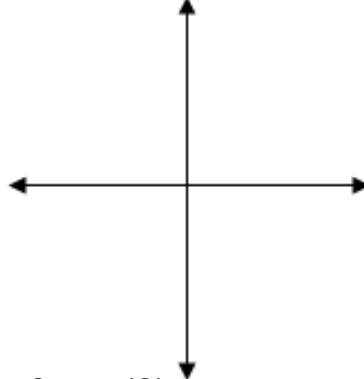
Foci (F) \_\_\_\_\_

major axis length = \_\_\_\_\_

minor axis length = \_\_\_\_\_

### Vertical Ellipse

$$\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$$



Center (C) \_\_\_\_\_

Vertices (V) \_\_\_\_\_

Co-vertices (CV) \_\_\_\_\_

Foci (F) \_\_\_\_\_

major axis length = \_\_\_\_\_

minor axis length = \_\_\_\_\_

### Ellipses - Translated/Shifted Ellipses

#### Horizontal Ellipse

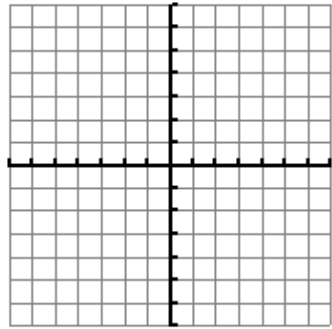
$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$$

#### Vertical Ellipse

$$\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$$

Example 1:

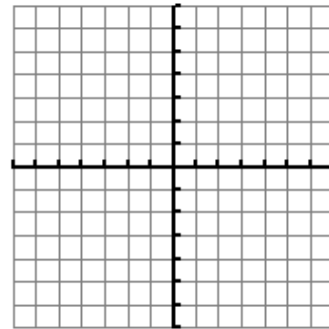
$$\frac{x^2}{25} + \frac{y^2}{4} = 1$$



C \_\_\_\_\_  
V \_\_\_\_\_  
CV \_\_\_\_\_  
F \_\_\_\_\_  
major length = \_\_\_\_\_  
minor length = \_\_\_\_\_

Example 2:

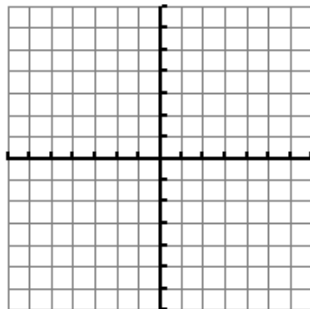
$$\frac{x^2}{1} + \frac{y^2}{9} = 1$$



C \_\_\_\_\_  
V \_\_\_\_\_  
CV \_\_\_\_\_  
F \_\_\_\_\_  
major length = \_\_\_\_\_  
minor length = \_\_\_\_\_

Example 3:

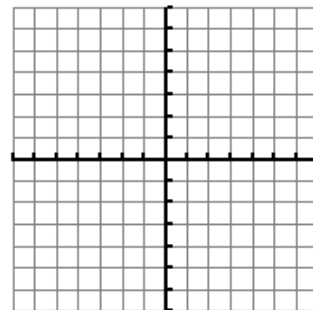
$$\frac{(x-2)^2}{4} + \frac{(y+3)^2}{9} = 1$$



C \_\_\_\_\_  
V \_\_\_\_\_  
CV \_\_\_\_\_  
F \_\_\_\_\_  
major length = \_\_\_\_\_  
minor length = \_\_\_\_\_

Example 4:

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



C \_\_\_\_\_  
V \_\_\_\_\_  
CV \_\_\_\_\_  
F \_\_\_\_\_  
major length = \_\_\_\_\_  
minor length = \_\_\_\_\_