

## Graph Ellipses – Center Form

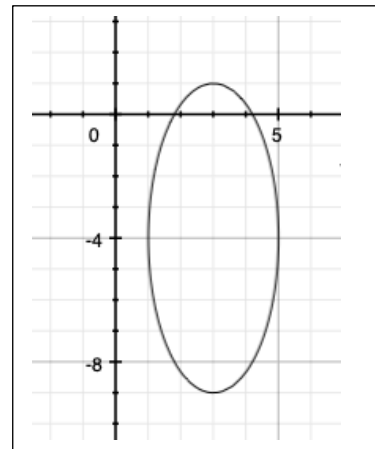
$$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1 \text{ center is at } (h, k), \text{ with length of axes is } a \text{ and } b$$

### Procedure

1. Label the center (+h,+k) (*change the signs*)
2. From the center, go over  $a$  on both sides of center horizontally
3. From the center, go up & down  $b$  on both sides of center vertically
4. Connect the points

Example: Graph  $\frac{(x-3)^2}{2^2} + \frac{(y+4)^2}{5^2} = 1$

1. The center is at (3, -4)
2. From the center, move 2 horizontally on both sides of the center
3. From the center, move 5 vertically on both sides of the center
4. Connect in an ellipse (oval)



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

$$1a. \frac{x^2}{25} + \frac{y^2}{9} = 1$$

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

$$2a. \frac{x^2}{36} + \frac{y^2}{16} = 1$$

$$3. \frac{(x+2)^2}{9} + \frac{(y-1)^2}{16} = 1$$

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

$$4. \frac{(x-6)^2}{4} + \frac{(y+1)^2}{49} = 1$$

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