Determine the center, the a value, the vertices, the b value, the co-vertices, the c value, the foci, and e(eccentricity). Graph the center, vertices, a line along the major axis, co-vertices, a line along the minor axis, and foci. Use the major and minor axis lines to help you sketch the ellipse. All non-integer values should be rounded to the nearest hundredth.

1. $\dfrac{x^2}{49}+\dfrac{y^2}{36}=1$

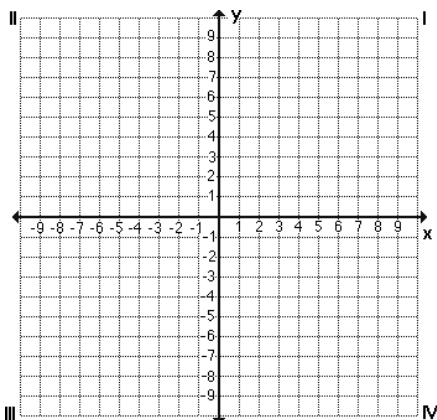Center $(\quad,\quad)$

$a =$ _____

Vertices $(\quad,\quad)(\quad,\quad)$

$b =$ _____

Co-vertices $(\quad,\quad)(\quad,\quad)$

$c =$ _____

Foci $(\quad,\quad)(\quad,\quad)$

$e =$ _____

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

Center $(\quad,\quad)$

$a =$ _____

Vertices $(\quad,\quad)(\quad,\quad)$

$b =$ _____

Co-vertices $(\quad,\quad)(\quad,\quad)$

$c =$ _____

Foci $(\quad,\quad)(\quad,\quad)$

$e =$ _____
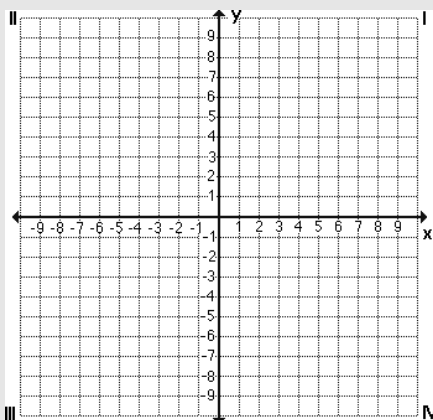
3. $\dfrac{(x-5)^2}{25}+\dfrac{(y+1)^2}{1}=1$

Center $(\quad,\quad)$

$a =$ _____

Vertices $(\quad,\quad)(\quad,\quad)$

$b =$ _____

Co-vertices $(\quad,\quad)(\quad,\quad)$

$c =$ _____

Foci $(\quad,\quad)(\quad,\quad)$

$e =$ _____
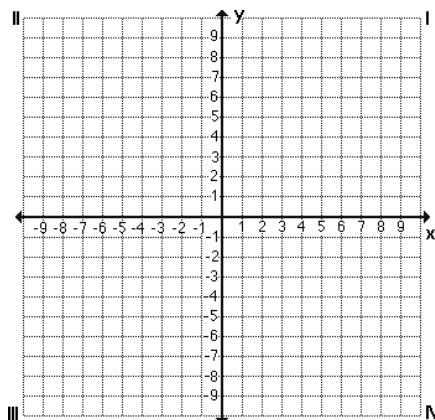
Determine the center, the a value, the vertices, the b value, the co-vertices, the c value, and the foci. Graph the center, vertices, a line along the major axis, co-vertices, a line along the minor axis, and foci. Use the major and minor axis lines to help you sketch the ellipse. All non-integer values should be rounded to the nearest hundredth.

4. $\dfrac{x^2}{100} + \dfrac{y^2}{64} = 1$
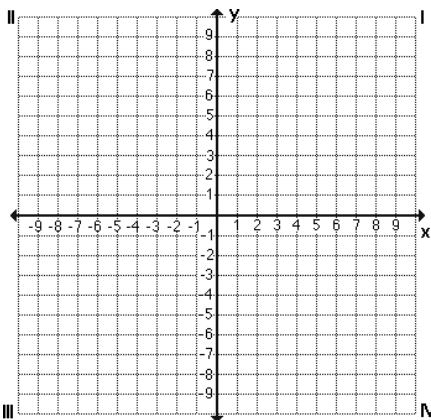
Center (,)

a = _____

Vertices (,)(,)

b = _____

Co-vertices (,)(,)

c = _____

Foci (,)(,)

e = _____

5. $\dfrac{x^2}{81} + \dfrac{(y-2)^2}{9} = 1$

Center (,)
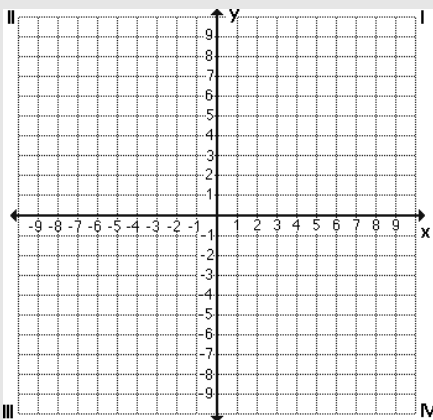
a = _____

Vertices (,)(,)

b = _____

Co-vertices (,)(,)

c = _____

Foci (,)(,)

e = _____

6. $\dfrac{(x+3)^2}{4} + \dfrac{y^2}{1} = 1$

Center (,)
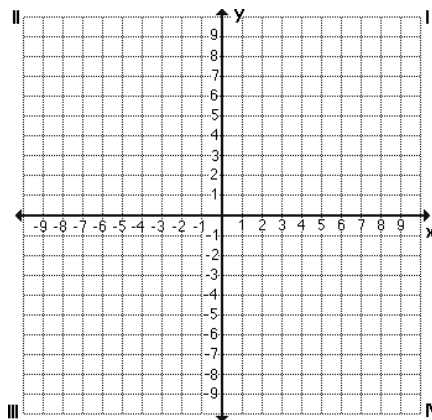
a = _____

Vertices (,)(,)

b = _____

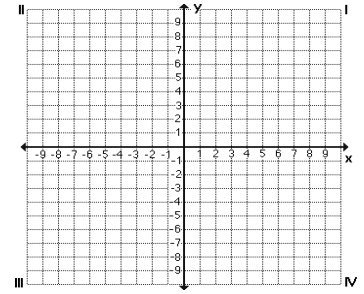Co-vertices (,)(,)

c = _____

Foci (,)(,)

e = _____

Write an equation of the ellipse with the given characteristics and center $(0,0)$. Think about how the givens would help you find the a and b value. Then, use those values to get the numbers you need for the equation. Graphing may help you.
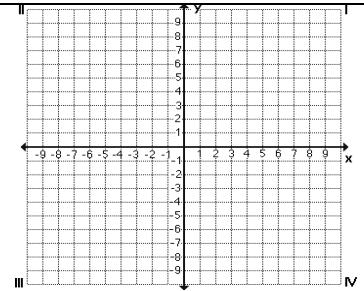
7. Vertex $=(7,0)$ Co-Vertex $=(0,-3)$

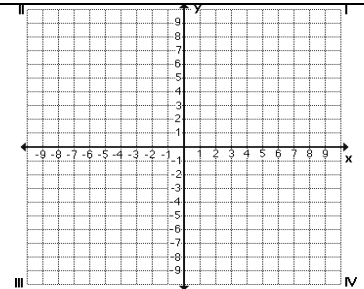$$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$$

Equation: _____

8. Vertex $=(-10,0)$ Co-Vertex $=(0,5)$

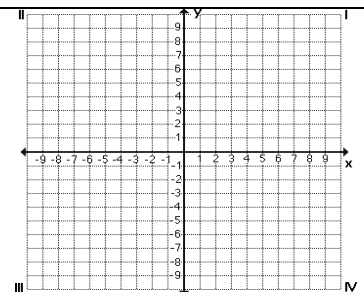$$\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$$

Equation: _____

9. Vertex $=(-6,0)$ Co-Vertex $=(0,\sqrt{11})$

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

Equation: _____

10. Vertex $=(\sqrt{13},0)$ Co-Vertex $=(0,-1)$

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

Equation: _____

11. The path of the earth around the sun is an ellipse with the sun at one focus. The ellipse has a major axis of 186,000,000 miles and eccentricity of 0.017. Find the distance between the earth and the sun when the earth is (a) closest to the sun and (b) farthest from the sun.

$\leftarrow$—186,000,000 mi—$\rightarrow$