## Ellipses

- An Ellipse is sometimes referred to as an $\qquad$ .
- The denominators of the equation determine how $\qquad$ and $\qquad$ the graph is.
- The major axis is the $\qquad$ axis of the ellipse.
- The minor axis is the $\qquad$ axis of the ellipse.
- The Vertices are the end points of the $\qquad$ axis.
- The Co-vertices are the end points of the $\qquad$ axis.
- The $\qquad$ of an ellipse are the 2 points whose sum of distances from any point on the ellipse is always the same.
- The Foci points always lie on the $\qquad$ axis.
- For ellipses, "a" is always $\qquad$ .

| Standard Form | Orientation | Description |
| :---: | :---: | :---: |
| $\frac{(x-h)^{2}}{a^{2}}+\frac{(y-k)^{2}}{b^{2}}=1$ <br> Where $\mathrm{c}^{2}=$ |  | Center: <br> Foci: <br> Major Axis: <br> Major Axis vertices: <br> Minor Axis: <br> Co-vertices: |
| $\frac{(x-h)^{2}}{b^{2}}+\frac{(y-k)^{2}}{a^{2}}=1$ <br> Where $\mathrm{c}^{2}=$ |  | Center: <br> Foci: <br> Major Axis: <br> Major Axis vertices: <br> Minor Axis: <br> Co-vertices: |

## Graph the following:

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

$\mathrm{a}=$ $\qquad$ $\mathrm{b}=$ $\qquad$
Center: (__, ___)
Vertices:

Co-Vertices:


Foci Distance: $\mathrm{c}^{2}=\mathrm{a}^{2}-\mathrm{b}^{2}$

Foci Points:

## Graph the following:

$$
\frac{(x+1)^{2}}{16}+\frac{(y-2)^{2}}{25}=1
$$

$\mathrm{a}=$ $\qquad$ $\mathrm{b}=$ $\qquad$
Center: (__ _ _ )
Vertices:


Co-Vertices:

Foci Distance: $\mathrm{c}^{2}=\mathrm{a}^{2}-\mathrm{b}^{2}$

Foci Points:

