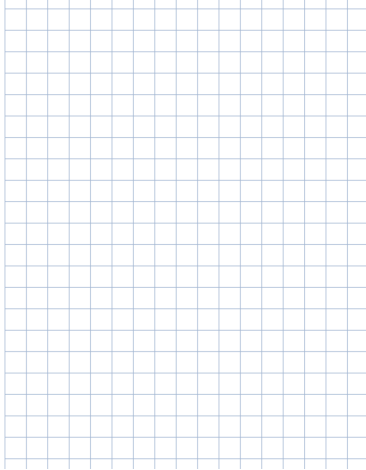


ELLIPSE: The locus of points, the sum of whose distances from 2 fixed points called Foci is a constant.

Draw your diagram here

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



Center: _____

Major Axis: Horiz. Or Vert
(Circle one)

A = _____

B = _____

C = _____

Vertices: _____

Endpoints: _____

Focus: _____

Latus Rectum: _____

Latus Rectum Endpoints

Eccentricity: _____

Circular or Ovalish: _____

TO GRAPH AN ELLIPSE

1) Get the equation into standard form if not done already.

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

- To get the ellipse in standard form:**
- Bring the constant to the other side of the equation.
 - Group the x's and the y's together.
 - Factor the coefficients of the x² and the y².
 - Complete the square inside of each parentheses.
 - Distribute these new numbers and add to the right-hand side.
 - Finish completing the square by factoring.
 - Divide both sides of the equation by the number on the right-hand side of the equation.

2) (h,k) is the _____. Plot the center.

- 3) Determine the orientation of the major axis.
- If the bigger denominator is _____ the MAJOR AXIS IS HORIZONTAL
 - If the bigger denominator is _____ the MAJOR AXIS IS VERTICAL
- DRAW A DOTTED MAJOR AXIS GOING THRU THE CENTER**

4) The larger denominator is _____
Solve for a and plot the vertices on the major axis a units away from the center. **GIVE THE COORDINATES OF THE VERTICES**

5) The smaller denominator is ____ Solve for b and plot the endpoints on the minor axis. The minor axis is perpendicular to the major axis. **GIVE THE COORDINATES OF THE ENDPOINTS**

6) Using the formula _____, solve for c and plot the foci c units from the center on the major axis. **GIVE THE COORDINATES OF THE FOCI**

7) Find the length of the latus rectum using the formula
L.R. = _____

8) Cut the Latus Rectum length in half and go that many units away from each focus away from the major axis to plot the latus rectum endpoints.

9) Draw the ellipse thru the vertices, endpoints, and L.R. endpoints.

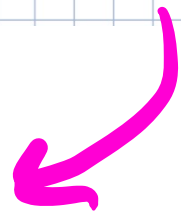
10) Find the eccentricity of the ellipse by using the formula:
e = _____

Always round e to the nearest tenth.

If e is closer to:
0 → the more circular the ellipse is
1 → the more elongated the ellipse is

Note: The eccentricity is not used to graph the ellipse. It is more of a check.

Fill in the blanks



$$\frac{(x+3)^2}{25} + \frac{(y-5)^2}{36} = 1$$

Center: _____

Major Axis: Horiz. Or Vert
(Circle one)

A = _____

B = _____

C = _____

Vertices: _____

Endpoints: _____

Focus: _____

Latus Rectum: _____

Latus Rectum Endpoints

Eccentricity: _____

Circular or Ovalish: _____

