Ellipses
Pages: 744-752
Section: 10.3

Notes Reset

Label the vertex, focus, and major and minor axes on the graph.

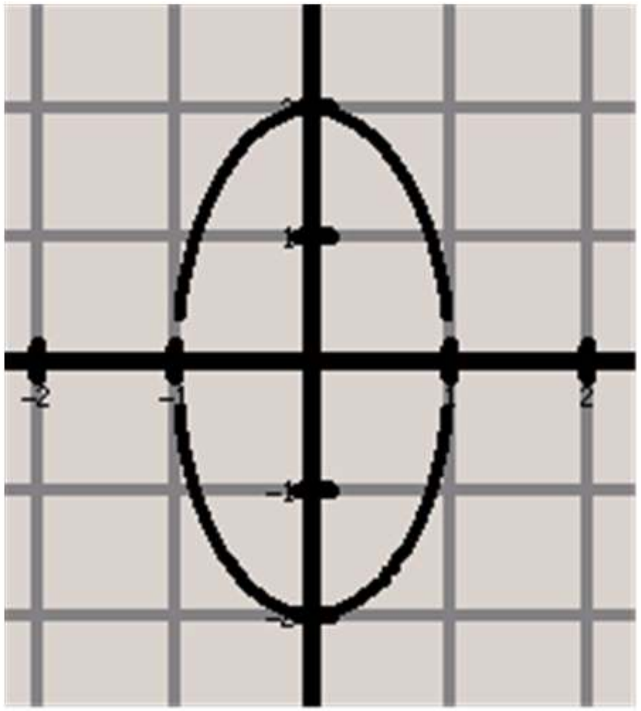
Vertical Ellipses

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

Major Axis is Vertical

How to find the foci:

$$c^2=a^2-b^2$$



*Your book talks about an "eccentricity". We will not be dealing with that, so ignore it when it asks you to find it! ☺

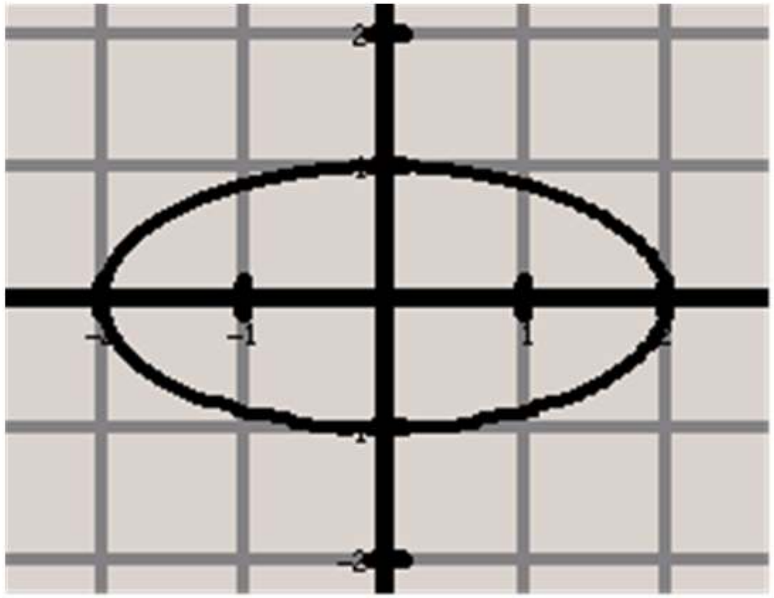
Notes Reset

Label the vertex, focus, and major and minor axes on the graph.

Horizontal Ellipses

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

Major Axis is Horizontal



How to find the foci:

$$c^2=a^2-b^2$$

*Your book talks about an "eccentricity". We will not be dealing with that, so ignore it when it asks you to find it! ☺

Notes Reset

Example 1 - a

Find the center, radius, vertices, and foci of the ellipse and sketch its graph.

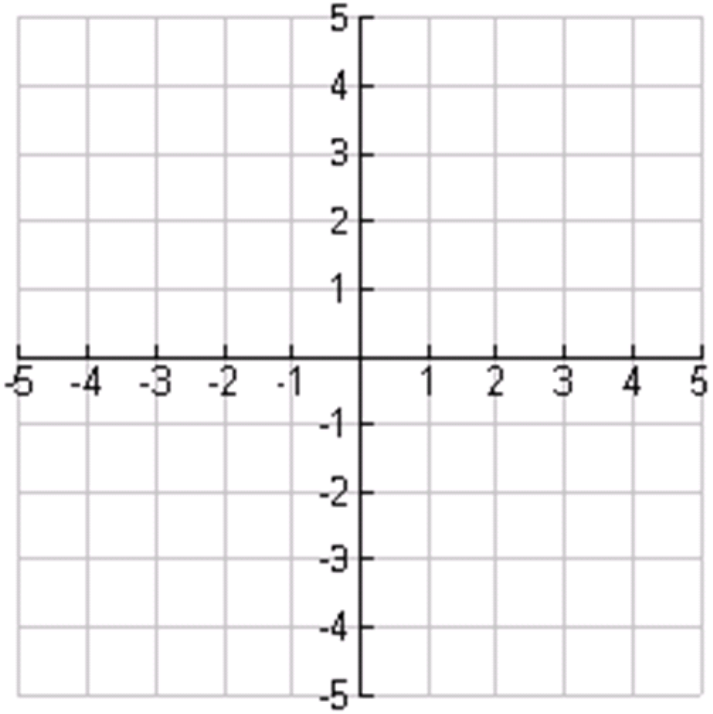
a. $\frac{x^2}{25}+\frac{y^2}{9}=1$

center: _____

radius: _____

vertices: _____ _____

foci: _____ _____



Notes Reset

Example 1 - b

Find the center, radius, vertices, and foci of the ellipse and sketch its graph.

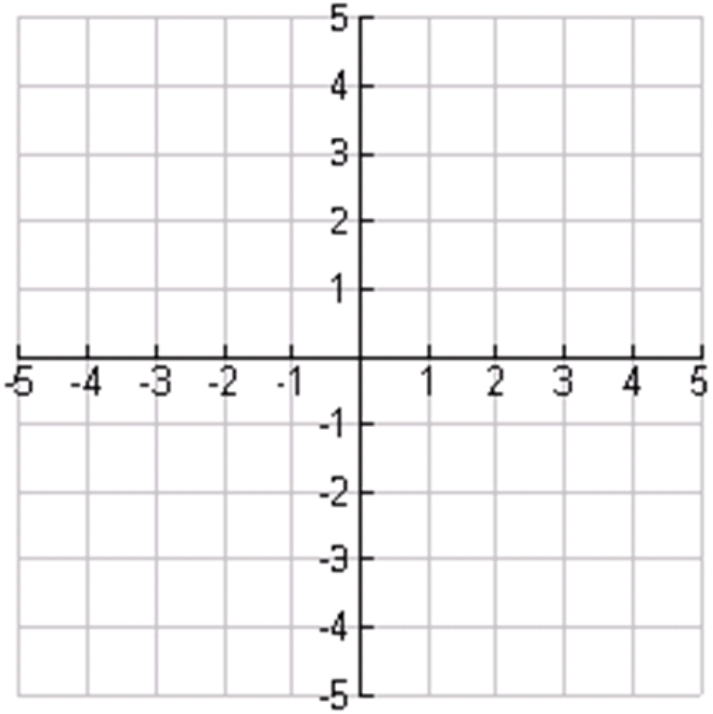
b. $\frac{x^2}{16}+\frac{y^2}{16}=1$

center: _____

radius: _____

vertices: _____ _____

foci: _____ _____



Notes Reset

Example 1 - c

First, let's complete the square:

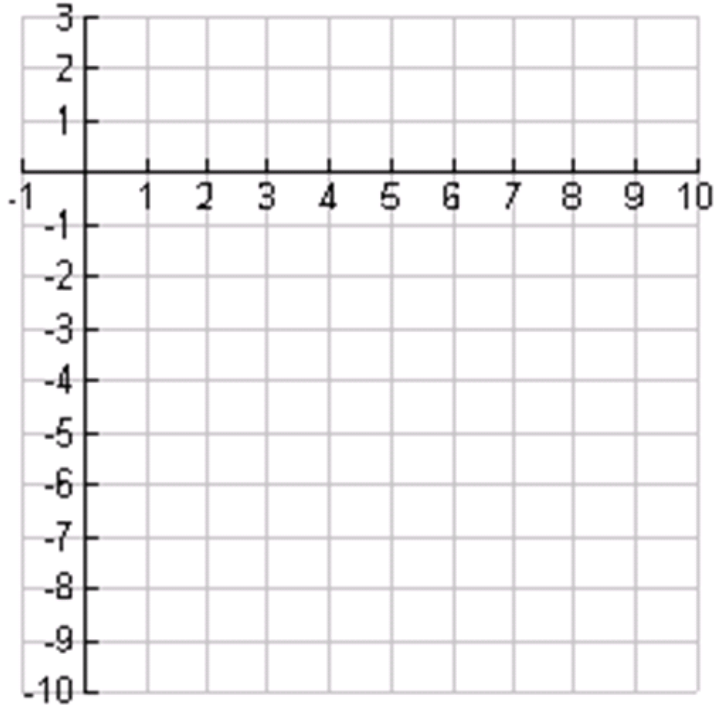
c. $9x^2+4y^2-54x+40y+37=0$

Notes Reset

Example 1
Problem c

Find the center, radius, vertices, and foci of the ellipse and sketch its graph.

c. $9x^2+4y^2-54x+40y+37=0$



center: _____

radius: _____

vertices: _____ _____

foci: _____ _____

Notes Reset

Example 1 - d

First, let's complete the square:

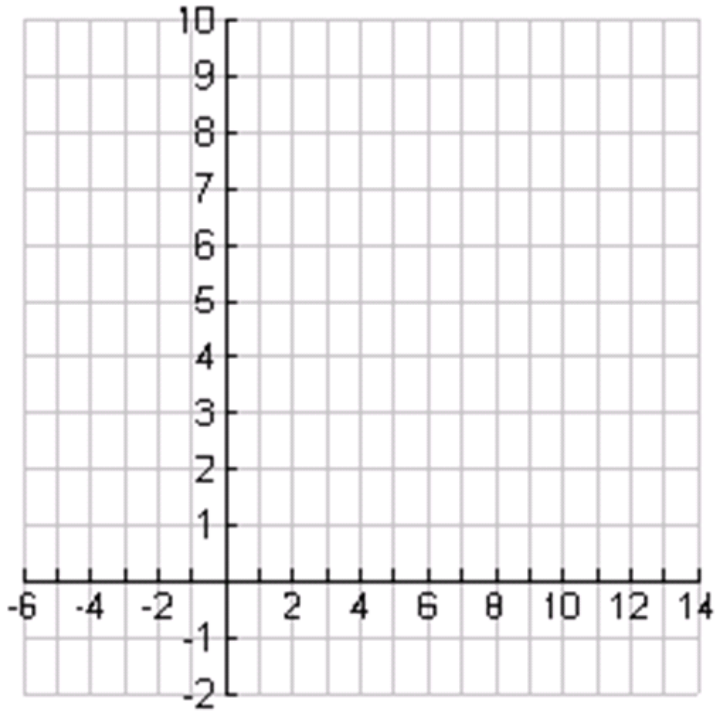
d. $x^2+5y^2-8x-30y-39=0$

Notes Reset

Example 1
Problem d

Find the center, radius, vertices, and foci of the ellipse and sketch its graph.

d. $x^2 + 5y^2 - 8x - 30y - 39 = 0$



center: _____

radius: _____

vertices: _____ _____

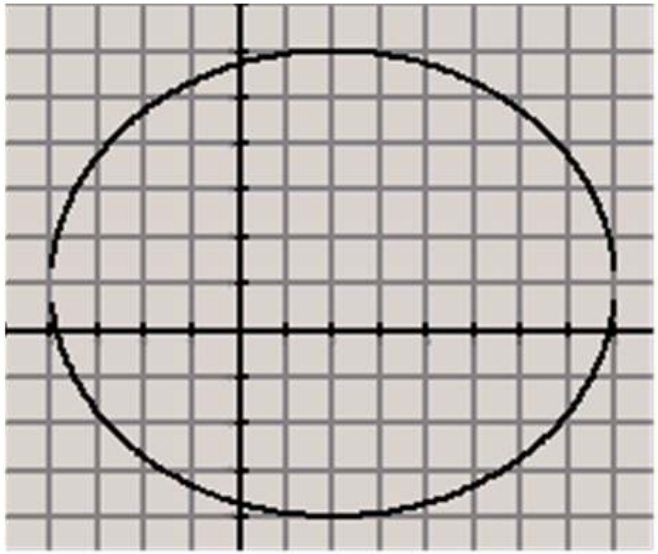
foci: _____ _____

Notes Reset

Example 2 - a

Find the standard form of the equation of the ellipse with the given characteristics and center.

b.



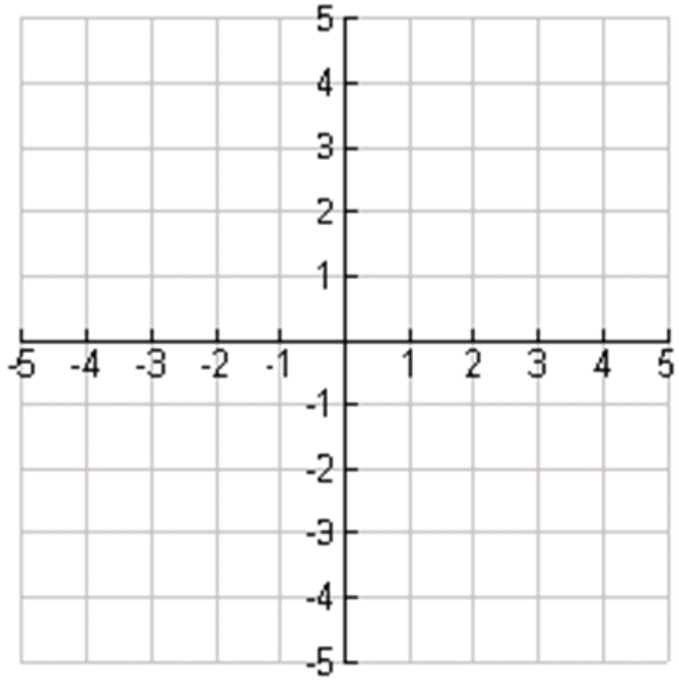
Notes Reset

Example 2 - c

Find the standard form of the equation of the ellipse with the given characteristics and center.
Sketch a graph to help.

c. Vertices: $(\pm 3, 0)$

foci: $(\pm 1, 0)$



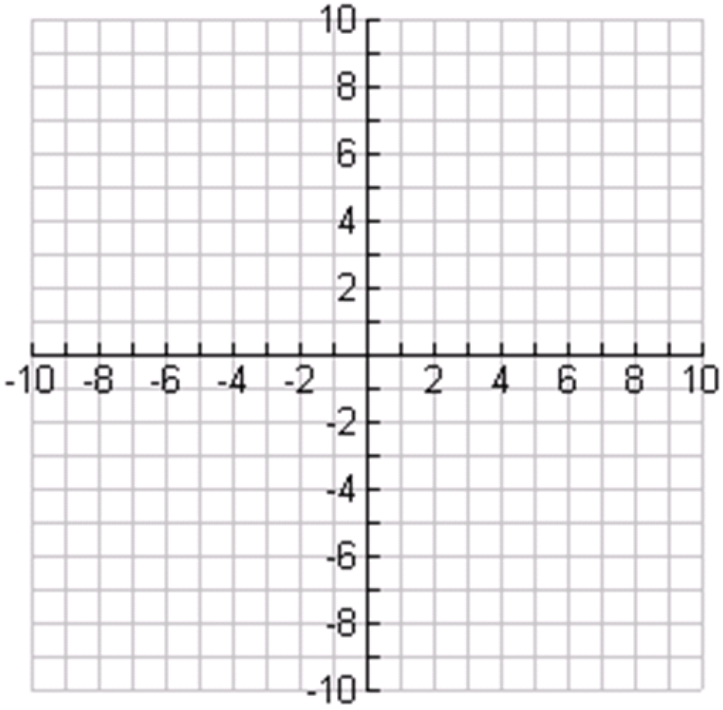
Notes Reset

Example 2 - d

Find the standard form of the equation of the ellipse with the given characteristics and center.
Sketch a graph to help.

d. foci: $(0, \pm 5)$

major axis of length 16



Notes Reset