

9.4 Ellipses

Use the information provided to write the standard form equation of each ellipse. Write the coordinates of the foci.

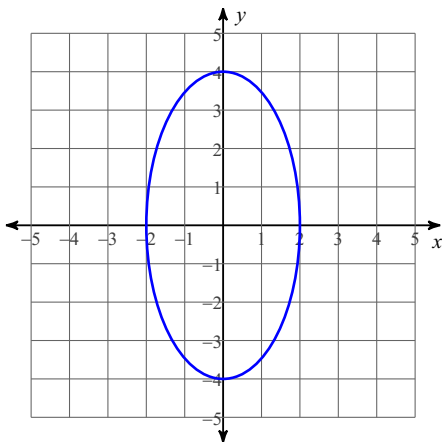
1) Vertices: $(0, 7), (0, -7)$
Co-vertices: $(1, 0), (-1, 0)$

2) Vertices: $(2\sqrt{35}, 0), (-2\sqrt{35}, 0)$
Co-vertices: $(0, 3\sqrt{10}), (0, -3\sqrt{10})$

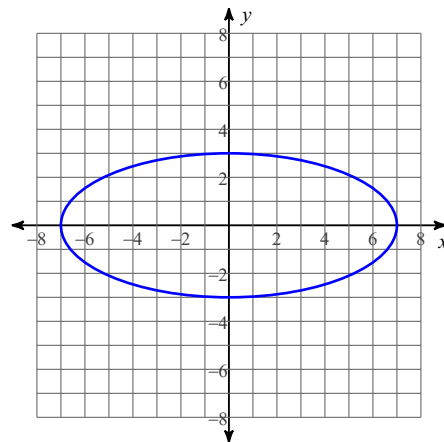
3) Endpoints of major axis: $(8, 0), (-8, 0)$
Endpoints of minor axis: $(0, 3), (0, -3)$

4) Endpoints of major axis: $(0, 7), (0, -7)$
Endpoints of minor axis: $(4, 0), (-4, 0)$

5)



6)

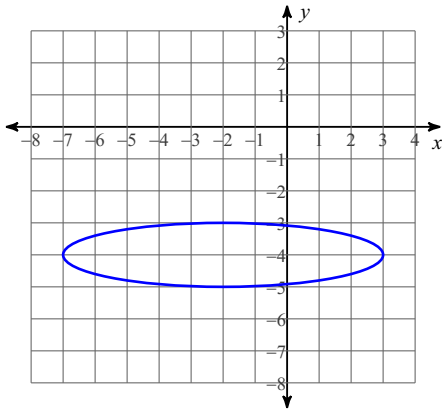


Use the information provided to write the standard form equation of each ellipse.

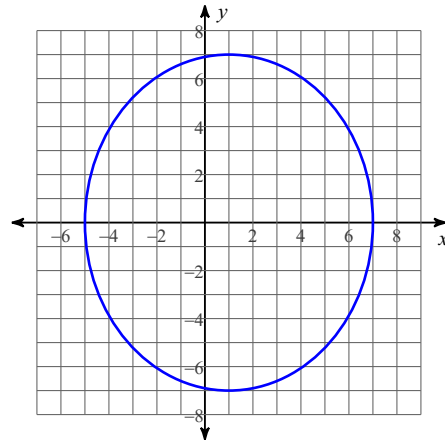
7) Vertices: $(-1, -7), (-13, -7)$
Co-vertices: $(-7, -2), (-7, -12)$

8) Vertices: $(-8, 8), (-8, -6)$
Co-vertices: $(-3, 1), (-13, 1)$

9)



10)

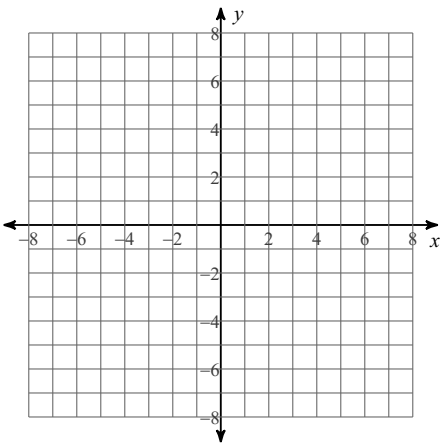


11) $2x^2 + y^2 - 40x - 8y + 46 = 0$

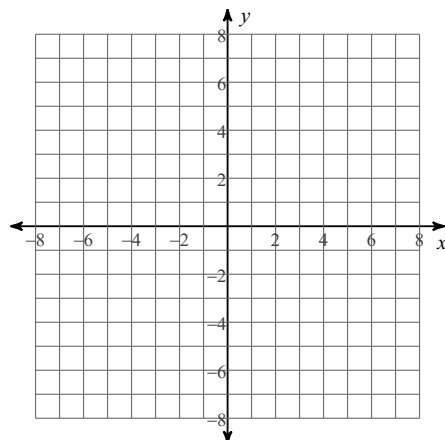
12) $2x^2 + y^2 - 24x - 20y + 92 = 0$

Identify the center, vertices, co-vertices, foci, length of the major axis, and length of the minor axis of each. Then sketch the graph.

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



14) $16x^2 + y^2 - 96x - 4y + 132 = 0$



Answers to 9.4 Ellipses (ID: 1)

1) $x^2 + \frac{y^2}{49} = 1$; $(0, 4\sqrt{3})$; $(0, -4\sqrt{3})$

3) $\frac{x^2}{64} + \frac{y^2}{9} = 1$ $(\sqrt{55}, 0)$ $(-\sqrt{55}, 0)$

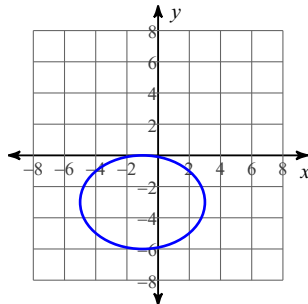
5) $\frac{x^2}{4} + \frac{y^2}{16} = 1$

7) $\frac{(x+7)^2}{36} + \frac{(y+7)^2}{25} = 1$

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

11) $\frac{(x-10)^2}{85} + \frac{(y-4)^2}{170} = 1$

13)



Center: $(-1, -3)$
 Vertices: $(3, -3)$
 $(-5, -3)$
 Co-vertices: $(-1, 0)$
 $(-1, -6)$
 Foci: $(-1 + \sqrt{7}, -3)$
 $(-1 - \sqrt{7}, -3)$
 Major Axis: 8 units
 Minor Axis: 6 units