

Properties of Ellipses

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

1) Vertices: $(6, -3), (-4, -3)$
Foci: $(5, -3), (-3, -3)$

2) Vertices: $(5, 10), (-21, 10)$
Foci: $(-3, 10), (-13, 10)$

3) Vertices: $(-5, 5), (-5, -21)$
Foci: $(-5, 4), (-5, -20)$

4) Center: $(0, 1)$
Vertex: $(0, -6)$
Co-vertex: $(1, 1)$

5) Center: $(-7, 6)$
Vertex: $(-7, 13)$
Co-vertex: $(-3, 6)$

6) Center: $(0, 3)$
Vertex: $(0, 16)$
Co-vertex: $(-12, 3)$

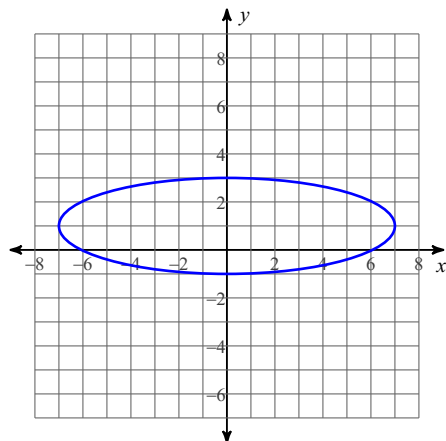
7) Foci: $(9, 5 + 5\sqrt{3}), (9, 5 - 5\sqrt{3})$
Endpoints of minor axis: $(14, 5), (4, 5)$

8) Foci: $(-8 + 6\sqrt{3}, 1), (-8 - 6\sqrt{3}, 1)$
Endpoints of minor axis: $(-8, 7), (-8, -5)$

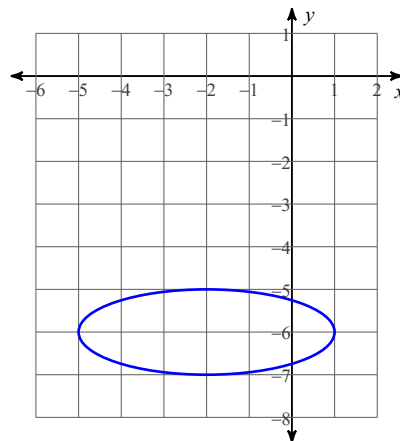
9) Foci: $(-4, -9), (-14, -9)$

Endpoints of minor axis: $(-9, -9 + \sqrt{170}), (-9, -9 - \sqrt{170})$

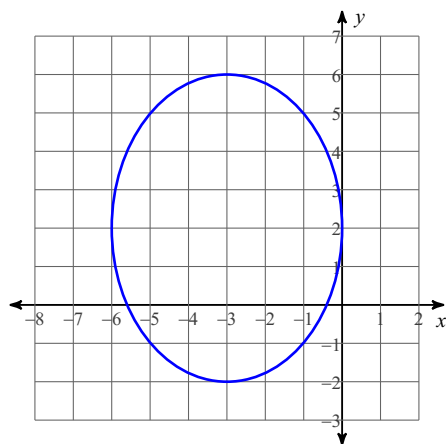
10)



11)



12)



Properties of Ellipses

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

- 1) Vertices: $(6, -3), (-4, -3)$
Foci: $(5, -3), (-3, -3)$

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

- 2) Vertices: $(5, 10), (-21, 10)$
Foci: $(-3, 10), (-13, 10)$

$$\frac{(x+8)^2}{169} + \frac{(y-10)^2}{144} = 1$$

- 3) Vertices: $(-5, 5), (-5, -21)$
Foci: $(-5, 4), (-5, -20)$

$$\frac{(x+5)^2}{25} + \frac{(y+8)^2}{169} = 1$$

- 4) Center: $(0, 1)$
Vertex: $(0, -6)$
Co-vertex: $(1, 1)$

$$x^2 + \frac{(y-1)^2}{49} = 1$$

- 5) Center: $(-7, 6)$
Vertex: $(-7, 13)$
Co-vertex: $(-3, 6)$

$$\frac{(x+7)^2}{16} + \frac{(y-6)^2}{49} = 1$$

- 6) Center: $(0, 3)$
Vertex: $(0, 16)$
Co-vertex: $(-12, 3)$

$$\frac{x^2}{144} + \frac{(y-3)^2}{169} = 1$$

- 7) Foci: $(9, 5 + 5\sqrt{3}), (9, 5 - 5\sqrt{3})$
Endpoints of minor axis: $(14, 5), (4, 5)$

$$\frac{(x-9)^2}{25} + \frac{(y-5)^2}{100} = 1$$

- 8) Foci: $(-8 + 6\sqrt{3}, 1), (-8 - 6\sqrt{3}, 1)$
Endpoints of minor axis: $(-8, 7), (-8, -5)$

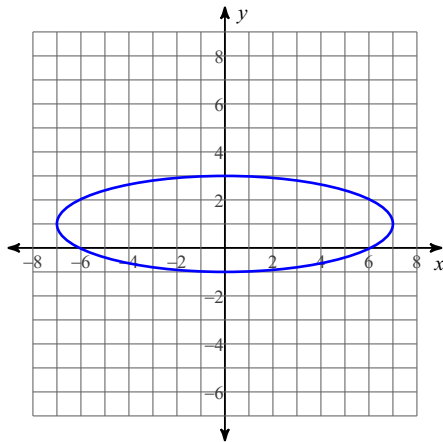
$$\frac{(x+8)^2}{144} + \frac{(y-1)^2}{36} = 1$$

9) Foci: $(-4, -9), (-14, -9)$

Endpoints of minor axis: $(-9, -9 + \sqrt{170}), (-9, -9 - \sqrt{170})$

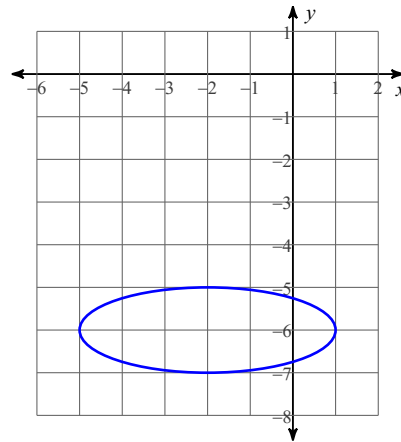
$$\frac{(x+9)^2}{195} + \frac{(y+9)^2}{170} = 1$$

10)



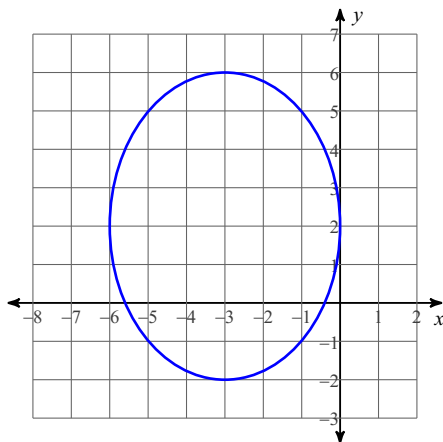
$$\frac{x^2}{49} + \frac{(y-1)^2}{4} = 1$$

11)



$$\frac{(x+2)^2}{9} + (y+6)^2 = 1$$

12)



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