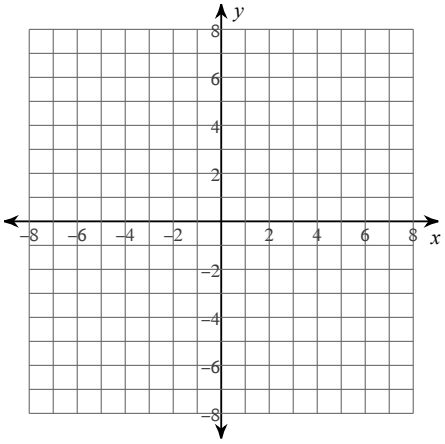
Honors Precalculus Name_____

Practice - Section 9.2 - Ellipses

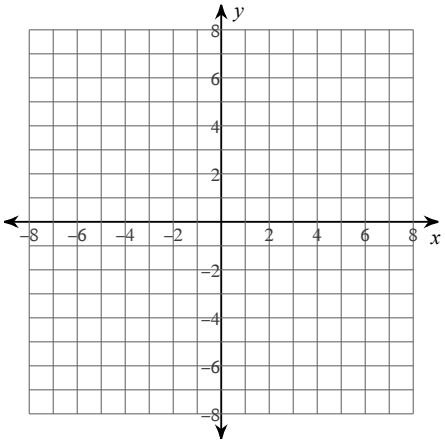
Date_____ Section____

Identify the center, vertices, foci, and eccentricity of each. Then sketch the graph.

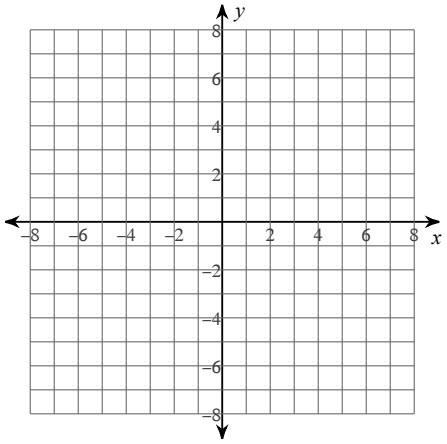
1) $\frac{(x-2)^2}{15} + \frac{y^2}{35} = 1$



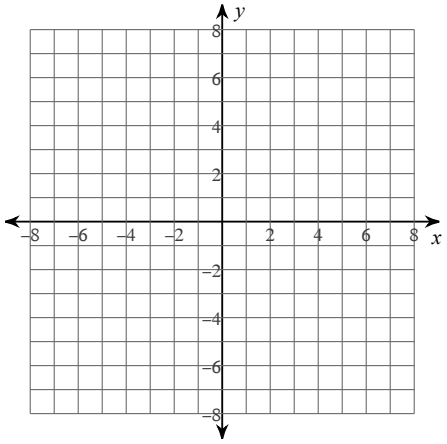
2) $\frac{x^2}{25} + \frac{(y-3)^2}{16} = 1$



3) $49x^2 + 9y^2 + 294x = 0$



4) $49x^2 + 4y^2 + 294x + 245 = 0$



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

5) $16x^2 + 9y^2 - 160x - 126y + 265 = 0$

6) $16x^2 + y^2 + 32x - 18y + 33 = 0$

7) Vertices: $(-9, 19), (-9, -7)$
Foci: $(-9, 18), (-9, -6)$

8) Vertices: $(3, 7), (3, -3)$
Foci: $(3, 6), (3, -2)$

9) Foci: $(-4, 17), (-4, -7)$
Endpoints of major axis: $(-4, 18), (-4, -8)$

10) Foci: $(1, 19), (1, -5)$
Endpoints of major axis: $(1, 20), (1, -6)$

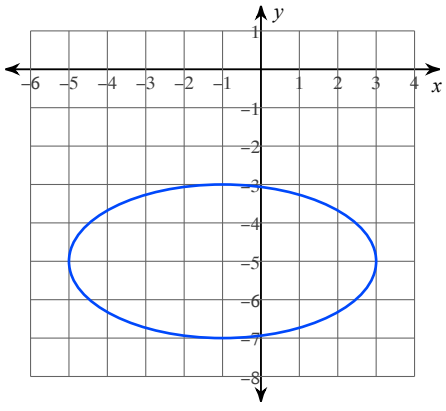
11) Center: $(-7, -7)$
Vertex: $(6, -7)$
Focus: $(-19, -7)$

12) Center: $(2, -4)$
Vertex: $(-11, -4)$
Focus: $(14, -4)$

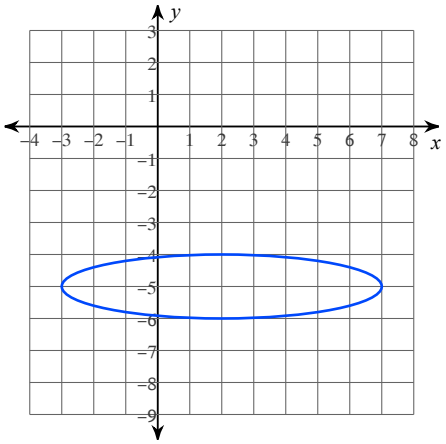
13) Major axis is horizontal
Center: $(4, 5)$
Major axis is 18 units long
Minor axis is 10 units long

14) Minor axis is vertical
Center: $(-3, 3)$
Major axis is 20 units long
Minor axis is 12 units long

15)

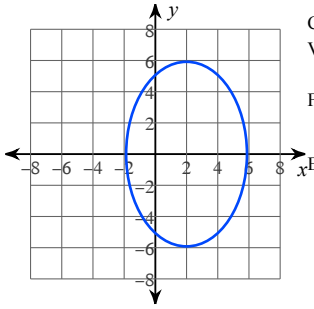


16)



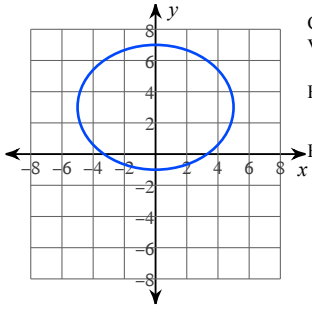
Answers to Practice - Section 9.2 - Ellipses

1)



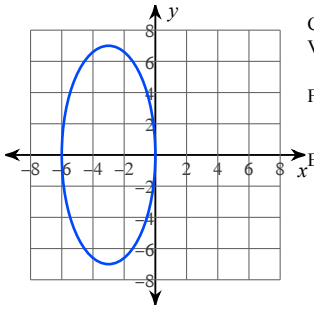
Center: $(2, 0)$
Vertices: $(2, \sqrt{35})$
$(2, -\sqrt{35})$
Foci: $(2, 2\sqrt{5})$
$(2, -2\sqrt{5})$
Eccentricity: $\frac{2\sqrt{7}}{7} \approx 0.756$

2)



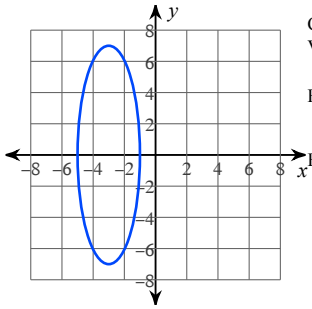
Center: $(0, 3)$
Vertices: $(5, 3)$
$(-5, 3)$
Foci: $(3, 3)$
$(-3, 3)$
Eccentricity: $\frac{3}{5} = 0.6$

3)



Center: $(-3, 0)$
Vertices: $(-3, 7)$
$(-3, -7)$
Foci: $(-3, 2\sqrt{10})$
$(-3, -2\sqrt{10})$
Eccentricity: $\frac{2\sqrt{10}}{7} \approx 0.904$

4)



Center: $(-3, 0)$
Vertices: $(-3, 7)$
$(-3, -7)$
Foci: $(-3, 3\sqrt{5})$
$(-3, -3\sqrt{5})$
Eccentricity: $\frac{3\sqrt{5}}{7} \approx 0.958$

5) $\frac{(x-5)^2}{36} + \frac{(y-7)^2}{64} = 1$

6) $\frac{(x+1)^2}{4} + \frac{(y-9)^2}{64} = 1$

7) $\frac{(x+9)^2}{25} + \frac{(y-6)^2}{169} = 1$

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

9) $\frac{(x+4)^2}{25} + \frac{(y-5)^2}{169} = 1$

10) $\frac{(x-1)^2}{25} + \frac{(y-7)^2}{169} = 1$

11) $\frac{(x+7)^2}{169} + \frac{(y+7)^2}{25} = 1$

12) $\frac{(x-2)^2}{169} + \frac{(y+4)^2}{25} = 1$

13) $\frac{(x-4)^2}{81} + \frac{(y-5)^2}{25} = 1$

14) $\frac{(x+3)^2}{100} + \frac{(y-3)^2}{36} = 1$

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

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