Conics Review #2

Use the information provided to write the vertex form equation of each parabola.

1) Vertex: $(-8, 5)$, Focus: $\left(-8, \dfrac{41}{8}\right)$

2) Vertex: $(9, -1)$, Directrix: $y = -\dfrac{31}{32}$

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

3) Center: $(3, 17)$
   Point on Circle: $(3, 18)$

4) Center: $(1, -7)$
   Tangent to $y = -2$

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

5) Vertices: $(8, 0), (-8, 0)$
   Foci: $\left(\sqrt{39}, 0\right), \left(-\sqrt{39}, 0\right)$

6) Vertices: $(10, -6), (-18, -6)$
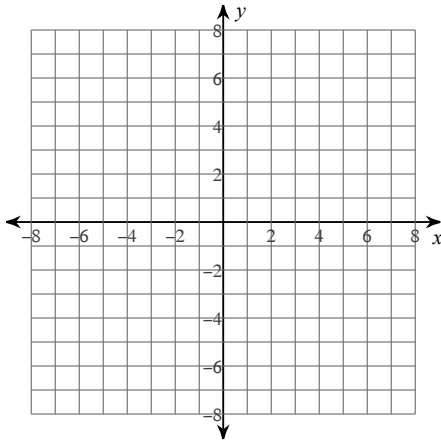   Co-vertices: $(-4, 5), (-4, -17)$

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

7) Vertices: $(11, -6), (1, -6)$
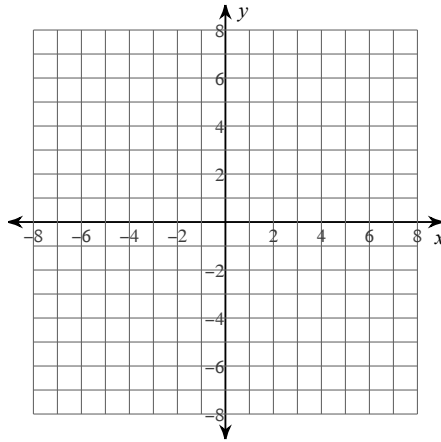   Foci: $(19, -6), (-7, -6)$

8) Vertices: $(8, -3), (-12, -3)$
   Asymptotes: $y = \dfrac{3}{5}x - \dfrac{9}{5}$
   $y = -\dfrac{3}{5}x - \dfrac{21}{5}$

Classify each conic section, write its equation in standard form, and sketch its graph.
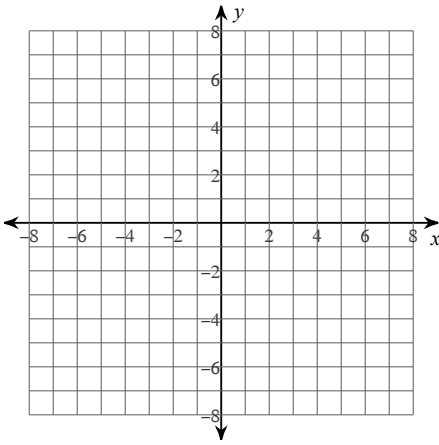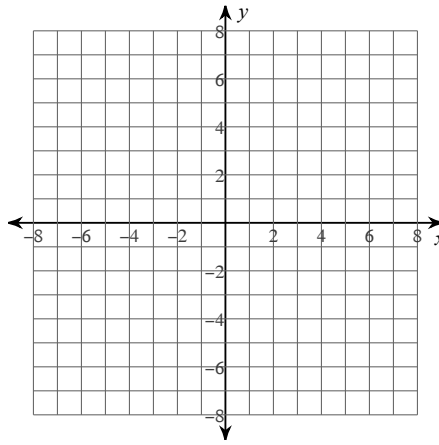
9) $x^2 + 9y^2 - 18y - 27 = 0$
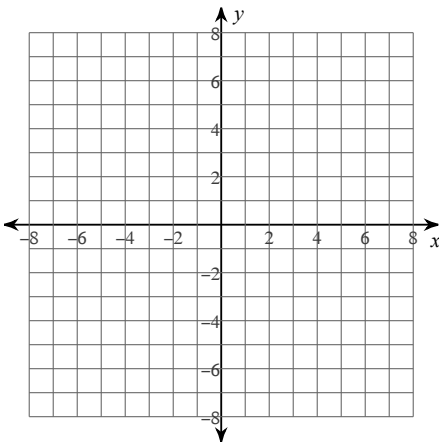

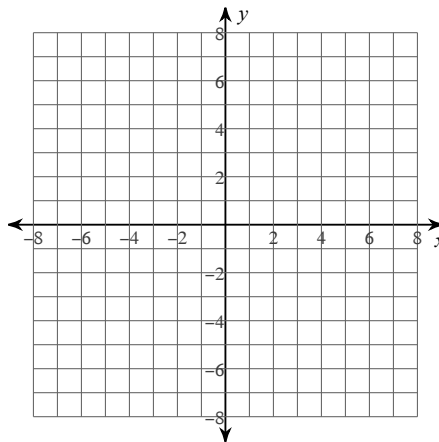10) $7x^2 + 5y^2 - 28x + 10y - 142 = 0$
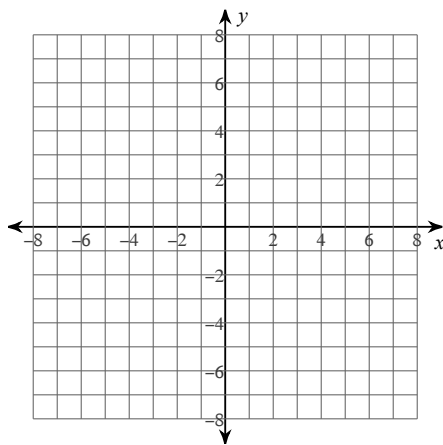
11) $49x^2 + 4y^2 - 196x = 0$
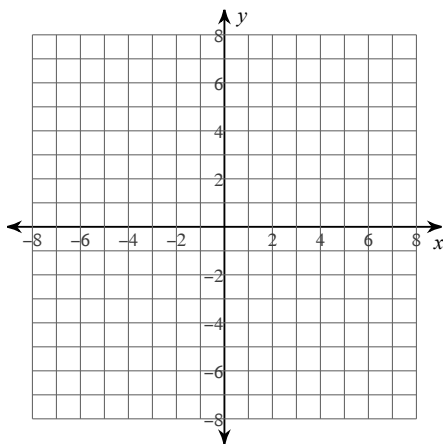
12) $-x^2 + y^2 + 2x + 2y - 5 = 0$

13) $9x^2 + 4y^2 - 54x - 63 = 0$

14) $-x^2 + y^2 - 25 = 0$

15) $x^2 + y^2 + 8y + 15 = 0$

16) $x^2 + y^2 + 2y = 0$

Conics Review #2

Use the information provided to write the vertex form equation of each parabola.

1) Vertex: $(-8, 5)$, Focus: $\left(-8, \dfrac{41}{8}\right)$

$y = 2(x + 8)^2 + 5$

2) Vertex: $(9, -1)$, Directrix: $y = -\dfrac{31}{32}$

$y = -8(x - 9)^2 - 1$

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

3) Center: $(3, 17)$
   Point on Circle: $(3, 18)$

$(x - 3)^2 + (y - 17)^2 = 1$

4) Center: $(1, -7)$
   Tangent to $y = -2$

$(x - 1)^2 + (y + 7)^2 = 25$

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

5) Vertices: $(8, 0), (-8, 0)$
   Foci: $\left(\sqrt{39}, 0\right), \left(-\sqrt{39}, 0\right)$

$\dfrac{x^2}{64} + \dfrac{y^2}{25} = 1$

6) Vertices: $(10, -6), (-18, -6)$
   Co-vertices: $(-4, 5), (-4, -17)$

$\dfrac{(x + 4)^2}{196} + \dfrac{(y + 6)^2}{121} = 1$

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

7) Vertices: $(11, -6), (1, -6)$
   Foci: $(19, -6), (-7, -6)$
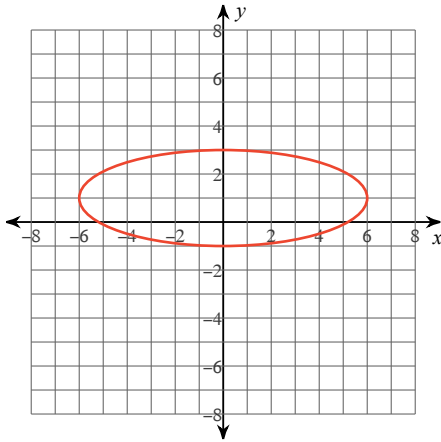
$\dfrac{(x - 6)^2}{25} - \dfrac{(y + 6)^2}{144} = 1$

8) Vertices: $(8, -3), (-12, -3)$
   Asymptotes: $y = \dfrac{3}{5}x - \dfrac{9}{5}$
   $y = -\dfrac{3}{5}x - \dfrac{21}{5}$

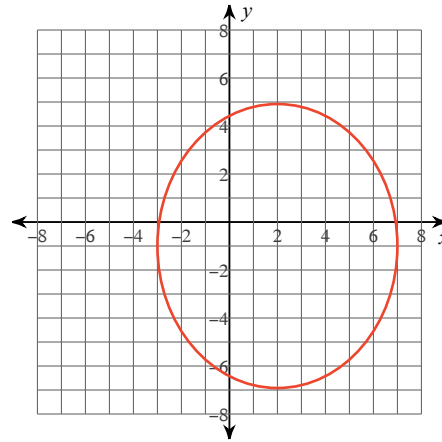$\dfrac{(x + 2)^2}{100} - \dfrac{(y + 3)^2}{36} = 1$

Classify each conic section, write its equation in standard form, and sketch its graph.
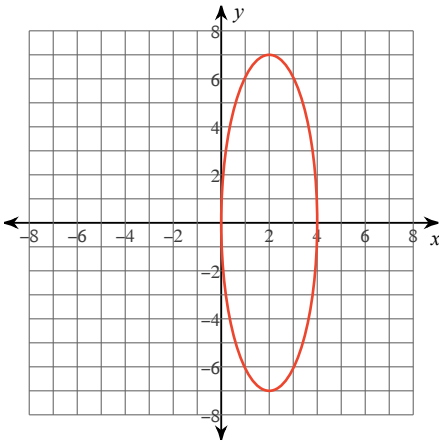
9) $x^2 + 9y^2 - 18y - 27 = 0$

Ellipse

$$\frac{x^2}{36} + \frac{(y-1)^2}{4} = 1$$

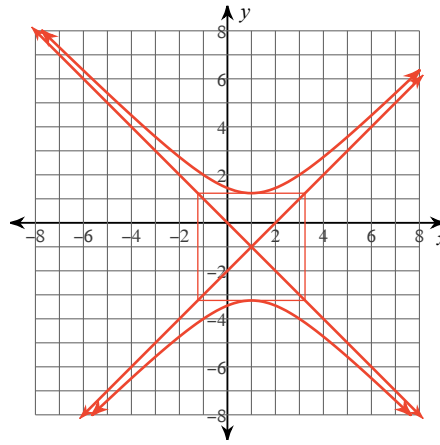
10) $7x^2 + 5y^2 - 28x + 10y - 142 = 0$

Ellipse

$$\frac{(x-2)^2}{25} + \frac{(y+1)^2}{35} = 1$$
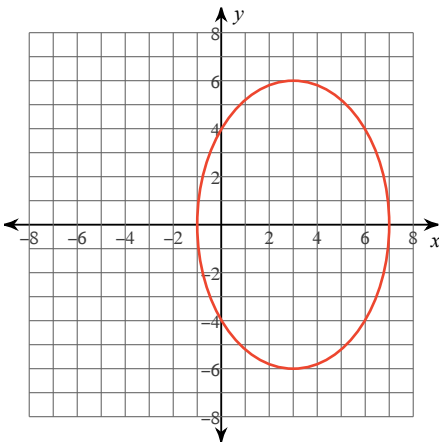
11) $49x^2 + 4y^2 - 196x = 0$

Ellipse
$\dfrac{(x-2)^2}{4} + \dfrac{y^2}{49} = 1$
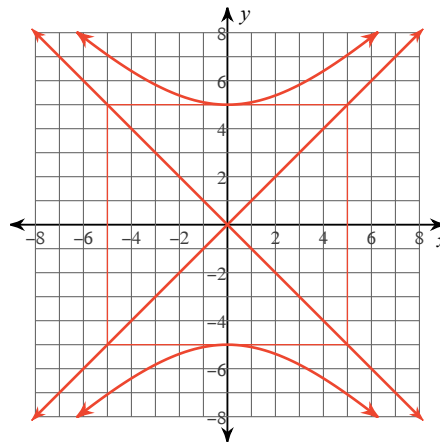
12) $-x^2 + y^2 + 2x + 2y - 5 = 0$

Hyperbola
$\dfrac{(y+1)^2}{5} - \dfrac{(x-1)^2}{5} = 1$
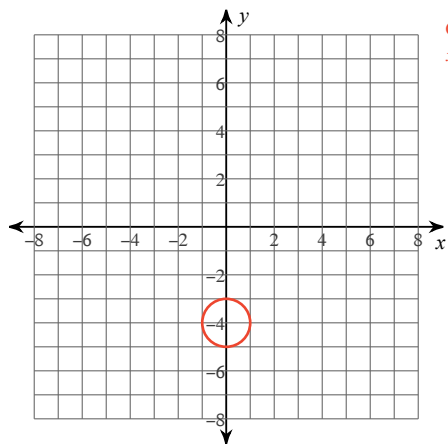
13) $9x^2 + 4y^2 - 54x - 63 = 0$

Ellipse
$\dfrac{(x-3)^2}{16} + \dfrac{y^2}{36} = 1$
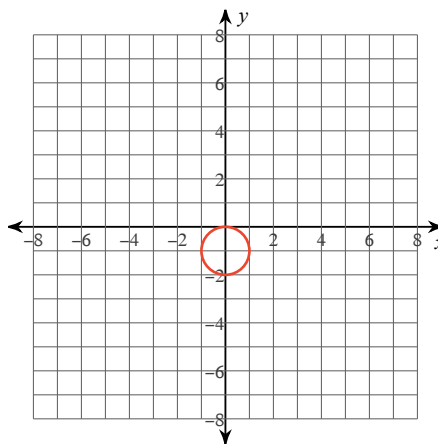
14) $-x^2 + y^2 - 25 = 0$

Hyperbola
$\dfrac{y^2}{25} - \dfrac{x^2}{25} = 1$

15) $x^2 + y^2 + 8y + 15 = 0$

Circle
$x^2 + (y + 4)^2 = 1$

16) $x^2 + y^2 + 2y = 0$

Circle
$x^2 + (y + 1)^2 = 1$