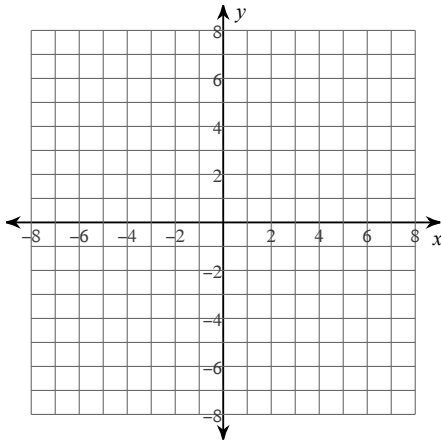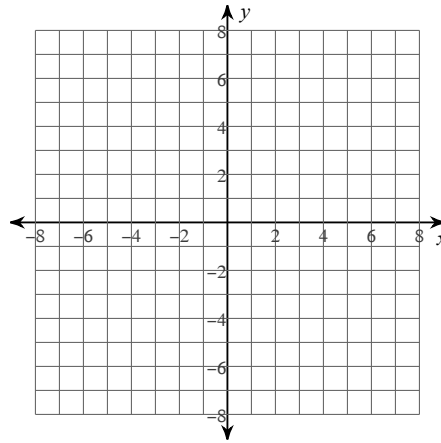# Chapter 9 Review

Identify the center, vertices, and foci of each ellipse. Then sketch the graph.
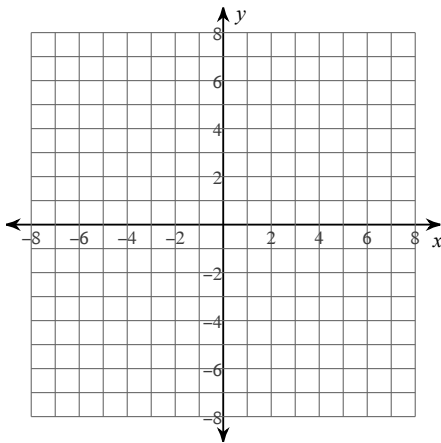
1) $\dfrac{x^2}{9} + y^2 = 1$
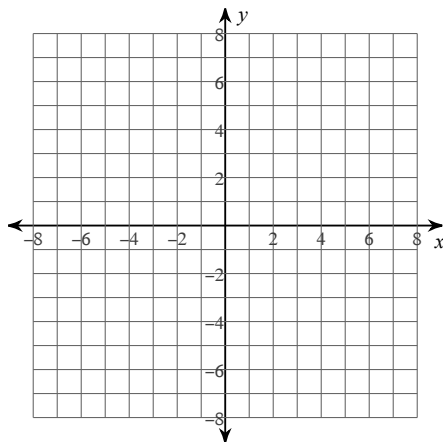

2) $x^2 + \dfrac{y^2}{4} = 1$

Identify the vertices, foci, and asymptotes of each hyperbola. Then sketch the graph. Does the hyperbola have a horizontal transverse axis or a vertical transverse axis?

3) $(y - 4)^2 - \dfrac{x^2}{4} = 1$

4) $\dfrac{(x+1)^2}{15} - \dfrac{y^2}{20} = 1$

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

5) $4x^2 + 9y^2 - 144 = 0$

6) $x^2 + 4y^2 - 100 = 0$

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

7) Center: $(7, -12)$
   Radius: 2

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

8) Vertex: $(-6, 0)$, Focus: $\left(-6, -\dfrac{1}{2}\right)$

9) Vertex: $(-4, 7)$, Focus: $\left(-\dfrac{15}{4}, 7\right)$

Classify each conic section.

10) $-y^2 + x + 4y + 1 = 0$

11) $x^2 - 2x + 3y - 17 = 0$

12) $4y^2 + x + 40y + 103 = 0$

13) $2y^2 + x - 16y + 32 = 0$