

Find all the information listed below for each equation, and then sketch the graph on a graphing grid. (You do not need to graph the foci)

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

Center: _____

a = _____

b = _____

c = _____

Asy. equations: _____

Major axis: _____ (horizontal or vertical)

Vertices: _____

Foci: _____

2) $\frac{y^2}{16} - \frac{x^2}{48} = 1$

Center: _____

a = _____

b = _____

c = _____

Asy. equations: _____

Major axis: _____ (horizontal or vertical)

Vertices: _____

Foci: _____

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

Center: _____

a = _____

b = _____

c = _____

Asy. slopes: _____

Major axis: _____ (horizontal or vertical)

Vertices: _____

Foci: _____

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

Center: _____

a = _____

b = _____

c = _____

Asy. slopes: _____

Major axis: _____ (horizontal or vertical)

Vertices: _____

Foci: _____

Place the following equations in standard hyperbola form. You do not need to provide info nor graph them.

5) $80x^2 - 5y^2 = 80$

6) $y^2 - 2y - x^2 + 4x - 7 = 0$

Sketch these hyperbolas. Use an x/y-chart in each case.

7) $xy = -8$

8) $xy = 5$

Find the equation for each hyperbola with center at the origin that satisfies the given conditions.

9) Vertex: (5, 0)
Focus: (7, 0)

10) Focus: (0, -12)
Major axis: 6 units

11) Vertex: (-6, 0)
Asymptotes: $y = \pm 1/2x$

Find the equation for each hyperbola not centered at the origin that satisfies the given conditions.

12) Center: (1, 4)
Vertex: (4, 4)
Focus: (5, 4)

13) Vertices: (0, -1) & (0, 7)
Asy. slopes: ± 2

14) Vertex: (-3, 7)
Focus: (-3, 9)
major axis: 10 units

15) Be able to identify these parts of a hyperbola: vertex, focus, asymptote, and major axis.