10-5 **Practice** *Form G*

Hyperbolas

Find the equation of a hyperbola with the given values, foci, or vertices. Assume that the transverse axis is horizontal.

1. $a = 7$, $b = 2$

3. $b = 9$, $c = 12$

5. $a = 7$, $c = 9$

7. $b = 14$, $c = 20$

9. foci (± 9, 0), vertices (± 4, 0)

11. foci (± 13, 0), vertices (± 12, 0)

Find the vertices, foci, and asymptotes of each hyperbola. Then sketch the graph.

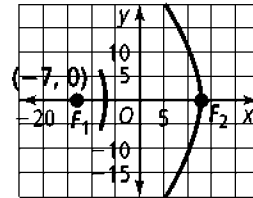**13.** $\dfrac{x^2}{4} - \dfrac{y^2}{4} = 1$

15. $\dfrac{x^2}{25} - \dfrac{y^2}{4} = 1$

17. $4y^2 - 36x^2 = 144$

19. The graph at the right shows a 2-dimensional view of a satellite dish and the small reflector inside it. The vertex of the small reflector is 6 in. from focus F_1 and 20 in. from focus F_2. What equation best models the small reflector?

Write the equation of a hyperbola with the given foci and vertices.

21. foci $(0, \pm 12)$, vertices $(0, F\pm 10)$

23. foci $(\pm 9, 0)$, vertices $(\pm 5, 0)$

Graph each equation.

25. $27y^2 - 9x^2 = 243$

27. Writing How can you tell from the standard form of the equation of a hyperbola whether the hyperbola is horizontal or vertical?

29. Reasoning Describe how you can find the asymptotes when you have the a and c values for a vertical hyperbola.