10-4 Exercises

California Standards
10.0, 16.0

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GUIDED PRACTICE

1. **Vocabulary** The vertices of a hyperbola lie on the __?__ (*transverse axis* or *conjugate axis*).

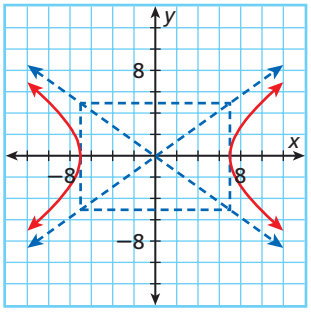
SEE EXAMPLE 1 p. 744

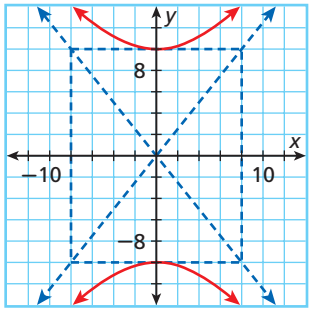
Find the constant difference for a hyperbola with the given foci and point on the hyperbola.

2. $F_1(-13, 0), F_2(13, 0), P(5, 0)$
3. $F_1(0, -17), F_2(0, 17), P(0, -15)$

SEE EXAMPLE 2 p. 745

Write an equation in standard form for each hyperbola.

4. center $(0, 0)$, vertex $(0, 5)$, and focus $(0, 13)$
5. center $(0, 0)$, vertex $(9, 0)$, and co-vertex $(0, 7)$
6. 

7. 

SEE EXAMPLE 3 p. 746

Find the vertices, co-vertices, and asymptotes of each hyperbola, and then graph.

8. $\frac{x^2}{49} - \frac{y^2}{36} = 1$
9. $\frac{x^2}{25} - \frac{y^2}{64} = 1$
10. $\frac{y^2}{25} - \frac{x^2}{36} = 1$
11. $\frac{y^2}{100} - \frac{x^2}{81} = 1$
12. $\frac{(x-4)^2}{9} - \frac{(y-3)^2}{64} = 1$
13. $\frac{(x-4)^2}{16} - \frac{(y+6)^2}{49} = 1$
14. $\frac{(y+8)^2}{36} - \frac{(x+3)^2}{25} = 1$
15. $\frac{(y+7)^2}{4} - \frac{x^2}{25} = 1$

PRACTICE AND PROBLEM SOLVING

Independent Practice

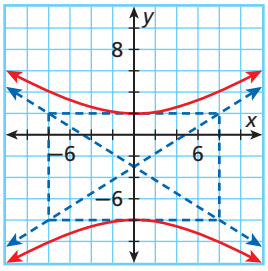
For Exercises	See Example
16–17	1
18–21	2
22–29	3

Extra Practice
Skills Practice p. S22
Application Practice p. S41

Find the constant difference for a hyperbola with the given foci and point on the hyperbola.

16. $F_1(0, -10), F_2(0, 10), P(0, 6)$
17. $F_1(-29, 0), F_2(29, 0), P(21, 0)$

Write an equation in standard form for each hyperbola.

18. center $(0, 0)$, vertex $(15, 0)$, co-vertex $(0, -13)$
19. center $(0, 0)$, vertex $(-8, 0)$, focus $(17, 0)$
20. 

21.