





ERROR ANALYSIS Describe and correct the error in identifying the asymptotes of the graph of the given rational function.

30. $y = \frac{3}{x+1} - 4$

Vertical asymptote: $x = 1$ 
Horizontal asymptote: $y = -4$ 

31. $y = \frac{-2}{x-6} + 7$

Vertical asymptote: $x = 6$ 
Horizontal asymptote: $y = -7$ 

WRITING EQUATIONS Write an equation whose graph is a hyperbola that has the given asymptotes and passes through the given point.


32. $x = 7, y = 8; (-6, 0)$

33. $x = -2, y = 5; (0, -9)$

34. $x = 3, y = -2; (5, -1)$

35. $x = -4, y = -4; (-8, 3)$

36. **WRITING** Let f be a function of the form $f(x) = \frac{a}{x-h} + k$. Can you graph f if you know only two points on the graph? Explain.

37.  **GEOMETRY** The height h of a trapezoid is given by the formula

$$h = \frac{2A}{b_1 + b_2}$$

where A is the area and b_1 and b_2 are the bases.

- Let $A = 50$ and $b_1 = 4$. Write h as a function of b_2 . Then graph the function and identify its domain and range.
- Use the graph to approximate the value of b_2 when $h = 6$.

38. **CHALLENGE** Describe how to find the asymptotes of the graph of $g(x) = \frac{3}{2x-4} + 8$. Then graph the function.

PROBLEM SOLVING

 **GRAPHING CALCULATOR** You may wish to use a graphing calculator to complete the following Problem Solving exercises.

EXAMPLE 5
on p. 778
for Exs. 39–42

39. **TEAM SPORTS** A figure skating troupe is planning an out-of-town trip. The expenses for the trip are shown in the flyer. Write an equation that gives the cost C (in dollars per person) as a function of the number p of people going on the trip. Then graph the equation.

TEXAS @HomeTutor for problem solving help at classzone.com

40. **CHARITY EVENTS** A committee of 5 people is responsible for making 500 sandwiches for a charity picnic. The committee hopes to recruit extra people for the task. Write an equation that gives the average number s of sandwiches made per person as a function of the number p of extra people recruited for the task. Then graph the equation.

TEXAS @HomeTutor for problem solving help at classzone.com



Trip Expenses

Bus rental	\$900
Food and lodging (per person)	\$400