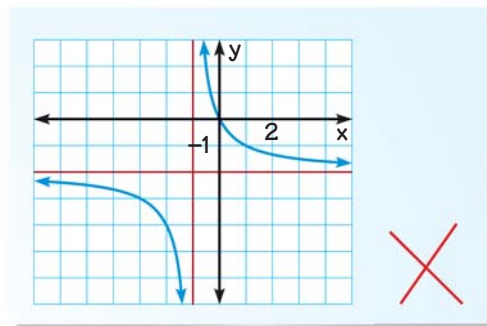
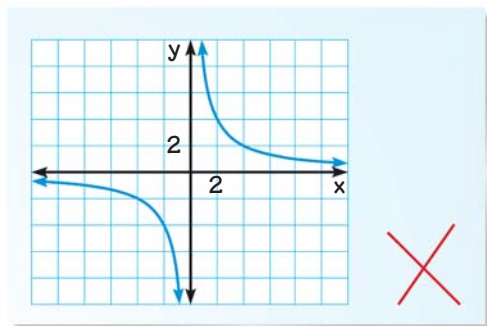


ERROR ANALYSIS Describe and correct the error in the graph.

25. $y = \frac{-8}{x}$

26. $y = \frac{2}{x-1} - 2$



EXAMPLE 3

on p. 560
for Exs. 27–34

GRAPHING FUNCTIONS Graph the function. State the domain and range.

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

28. $y = \frac{x-1}{x+5}$

29. $y = \frac{x+6}{4x-8}$

30. $y = \frac{8x+3}{2x-6}$

31. $y = \frac{-5x+2}{4x+5}$

32. $f(x) = \frac{6x-1}{3x-1}$

33. $g(x) = \frac{5x}{2x+3}$

34. $h(x) = \frac{5x+3}{-x+10}$

35. **TEXAS TAKS REASONING** Write a rational function such that the domain is all real numbers except -8 and the range is all real numbers except 3 .

36. **CHALLENGE** Show that the equation $f(x) = \frac{a}{x-h} + k$ represents a rational function by writing the right side as a quotient of polynomials.

PROBLEM SOLVING

EXAMPLE 4

on p. 560
for Exs. 37–38

37. **INTERNET SERVICE** An Internet service provider charges a \$50 installation fee and a monthly fee of \$43. Write and graph an equation that gives the average cost per month as a function of the number of months of service. After how many months will the average cost be \$53?

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38. **ROCK CLIMBING GYM** To join a rock climbing gym, you must pay an initial fee of \$100 and a monthly fee of \$59. Write and graph an equation that gives the average cost per month as a function of the number of months of membership. After how many months will the average cost be \$69?

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39. **MULTIPLE REPRESENTATIONS** The time t (in seconds) it takes for sound to travel 1 kilometer can be modeled by $t = \frac{1000}{0.6T + 331}$ where T is the air temperature (in degrees Celsius).

a. **Evaluating a Function** How long does it take for sound to travel 5 kilometers when the air temperature is 25°C ? *Explain.*

b. **Drawing a Graph** Suppose you are 1 kilometer from a lightning strike, and it takes 3 seconds to hear the thunder. Graph the given function, and use the graph to estimate the air temperature.