

14. **TAKS REASONING** What is the horizontal asymptote of the graph of the function $y = \frac{4x^2 - 21x + 5}{x^2 - 12}$?

(A) $y = 0$ (B) $y = \frac{1}{4}$ (C) $y = 4$ (D) $y = 4x$

GRAPHING FUNCTIONS Graph the function.

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

16. $y = \frac{8}{x^2 - x - 6}$

17. $f(x) = \frac{x^2 - 9}{2x^2 + 1}$

18. $y = \frac{x - 4}{x^2 - 3x}$

19. $y = \frac{x^2 + 11x + 18}{2x + 1}$

20. $g(x) = \frac{x^3 - 8}{6 - x^2}$

21. $y = \frac{x^2 + 3}{2x^3}$

22. $y = \frac{x^2 - 5x - 36}{3x}$

23. $h(x) = \frac{3x^2 + 10x - 8}{x^2 + 4}$

24. **TAKS REASONING** Write two different rational functions whose graphs have the same end behavior as the graph of $y = 3x^2$.

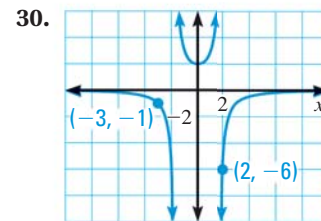
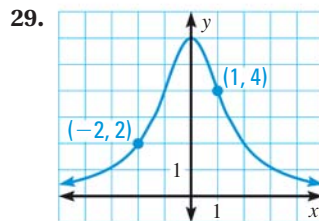
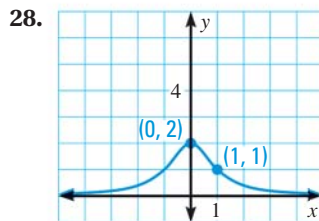
GRAPHING CALCULATOR Use a graphing calculator to find the range of the rational function.

25. $y = \frac{15}{x^2 + 2}$

26. $y = \frac{3x^2}{x^2 - 9}$

27. $y = \frac{x^2 - 2x}{2x + 3}$

CHALLENGE The graph of a function of the form $f(x) = \frac{a}{x^2 + b}$ is shown. Find the values of a and b .

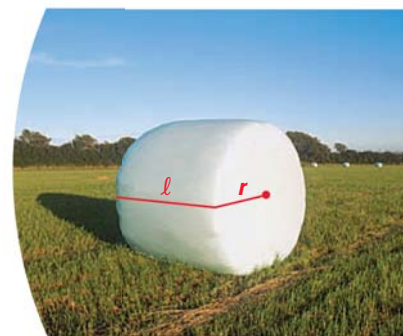


PROBLEM SOLVING

EXAMPLE 4
on p. 567
for Exs. 31–32

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

31. **AGRICULTURE** A farmer makes cylindrical bales of hay that have a volume of 100 cubic feet. Each bale is to be wrapped in plastic to keep the hay dry.
- Using the formula for the volume of a cylinder, write an equation that gives the length l of a bale in terms of the radius r .
 - Write a function that gives the surface area of a bale in terms of only the radius r .
 - Find the dimensions of a bale that has the given volume and uses the least amount of plastic possible when the bale is wrapped.



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