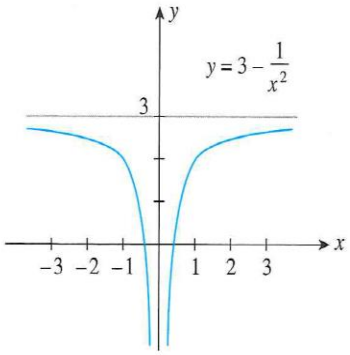
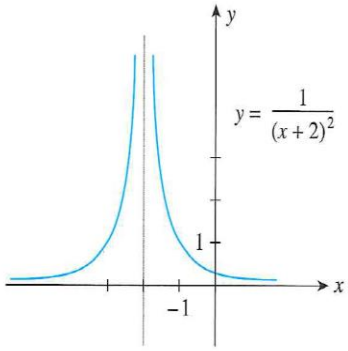
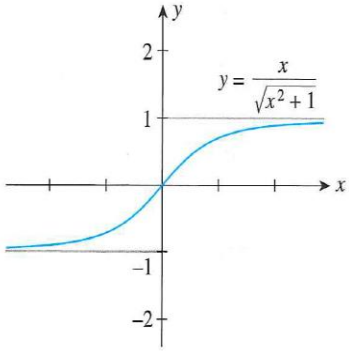
7.



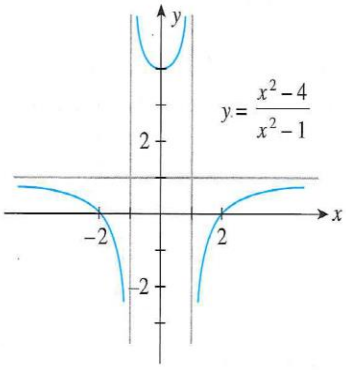
8.



9.



10.



In Exercises 11–28, find the horizontal and vertical asymptotes of the graph of the function. (You need not sketch the graph.)

11. $f(x) = \frac{1}{x}$

12. $f(x) = \frac{1}{x+2}$

13. $f(x) = -\frac{2}{x^2}$

14. $g(x) = \frac{1}{1+2x^2}$

18. $g(x) = 2x^3 + x^2 + 1$

19. $f(t) = \frac{t^2}{t^2 - 16}$

20. $g(x) = \frac{x^3}{x^2 - 4}$

21. $f(x) = \frac{3x}{x^2 - x - 6}$

22. $g(x) = \frac{2x}{x^2 + x - 2}$

23. $g(t) = 2 + \frac{5}{(t-2)^2}$

24. $f(x) = 1 + \frac{2}{x-3}$

25. $f(x) = \frac{x^2 - 2}{x^2 - 4}$

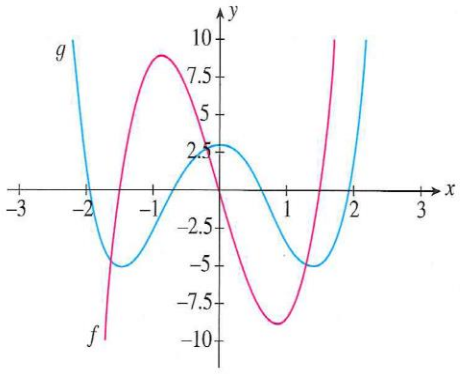
26. $h(x) = \frac{2 - x^2}{x^2 + x}$

27. $g(x) = \frac{x^3 - x}{x(x+1)}$

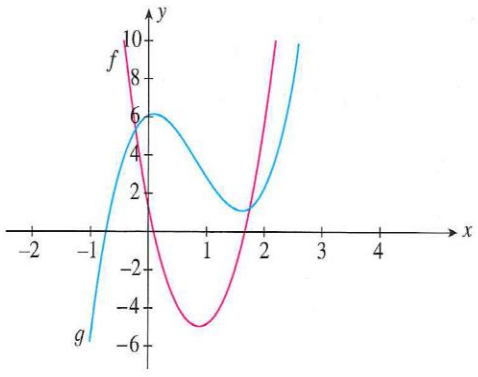
28. $f(x) = \frac{x^4 - x^2}{x(x-1)(x+2)}$

In Exercises 29 and 30, you are given the graphs of two functions f and g. One function is the derivative function of the other. Identify each of them.

29.



30.



31. TERMINAL VELOCITY A skydiver leaps from the gondola of a hot-air balloon. As she free-falls, air resistance, which is proportional to her velocity, builds up to a point at which it balances the force due to gravity. The resulting motion may be described in terms of her velocity as follows: Starting at rest (zero velocity), her velocity increases and approaches a constant velocity, called the *terminal velocity*. Sketch a graph of her velocity v versus time t.

32. SPREAD OF A FLU EPIDEMIC Initially, 10 students at a junior