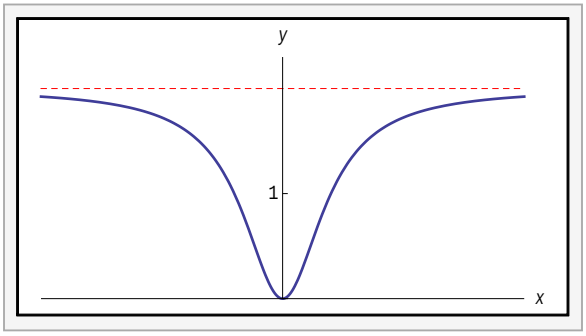
1.6 Powers, Polynomials, and Rational Functions

Name: Date:

P 5. Determine the end behavior of $f(x) = 3x^5$ as $x \to +\infty$ and as $x \to -\infty$.

P 9. Determine the end behavior of $f(x) = 3x^{-4}$ as $x \to +\infty$ and as $x \to -\infty$.

P 28. A rational function $y = f(x)$ is graphed below. If $f(x) = g(x)/h(x)$ with $g(x)$ and $h(x)$ both quadratic functions, give a possible formula for $g(x)$ and $h(x)$.



P 37. Find all horizontal and vertical asymptotes for each

$$f(x) = \frac{x^2 + 5x + 4}{x^2 - 4}$$

P 44. Which of the function (I)-(III) meet each of the following descriptions? There may be more than one function for each description, or none at all.

(a) Horizontal asymptote of $y = 1$.

(b) The x-axis is a horizontal asymptote.

(c) Symmetric about the y-axis.

(d) An odd function.

(e) Vertical asymptotes at $x = \pm 1$.

(I) $y = \dfrac{x-1}{x^2+1}$ (II) $y = \dfrac{x^2-1}{x^2+1}$ (III) $y = \dfrac{x^2+1}{x^2-1}$