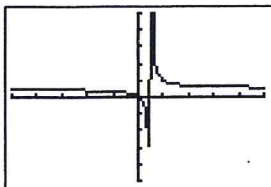


53. Odd:  $g(-x) = 2(-x)^3 - 3(-x) = -2x^3 + 3x = -g(x)$

54. Odd:  $h(-x) = \frac{1}{-x} = -\frac{1}{x} = -h(x)$

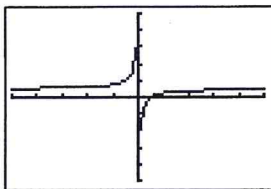
55. The quotient  $\frac{x}{x-1}$  is undefined at  $x = 1$ , indicating that  $x = 1$  is a vertical asymptote. Similarly,  $\lim_{x \rightarrow \infty} \frac{x}{x-1} = 1$ , indicating a horizontal asymptote at  $y = 1$ . The graph confirms these.



$[-10, 10]$  by  $[-10, 10]$

56. The quotient  $\frac{x-1}{x}$  is undefined at  $x = 0$ , indicating a possible vertical asymptote at  $x = 0$ . Similarly,

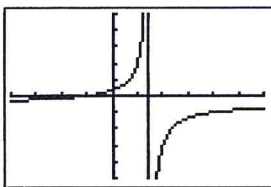
$\lim_{x \rightarrow \infty} \frac{x-1}{x} = 1$ , indicating a possible horizontal asymptote at  $y = 1$ . The graph confirms those asymptotes.



$[-10, 10]$  by  $[-10, 10]$

57. The quotient  $\frac{x+2}{3-x}$  is undefined at  $x = 3$ , indicating a possible vertical asymptote at  $x = 3$ . Similarly,

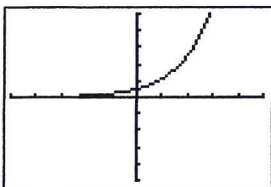
$\lim_{x \rightarrow \infty} \frac{x+2}{3-x} = -1$ , indicating a possible horizontal asymptote at  $y = -1$ . The graph confirms these asymptotes.



$[-8, 12]$  by  $[-10, 10]$

58. Since  $g(x)$  is continuous over  $-\infty < x < \infty$ , we do not expect a vertical asymptote. However,

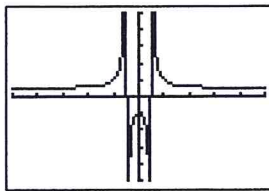
$\lim_{x \rightarrow \infty} 1.5^x = \lim_{x \rightarrow \infty} 1.5^{-x} = \lim_{x \rightarrow \infty} \frac{1}{1.5^x} = 0$ , so we expect a horizontal asymptote  $y = 0$ . The graph confirms this asymptote.



$[-10, 10]$  by  $[-10, 10]$

59. The quotient  $\frac{x^2+2}{x^2-1}$  is undefined at  $x = 1$  and  $x = -1$ .

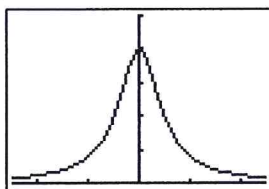
So we expect two vertical asymptotes. Similarly, the  $\lim_{x \rightarrow \infty} \frac{x^2+2}{x^2-1} = 1$ , so we expect a horizontal asymptote at  $y = 1$ . The graph confirms these asymptotes.



$[-10, 10]$  by  $[-10, 10]$

60. We note that  $x^2 + 1 > 0$  for  $-\infty < x < \infty$ , so we do not expect a vertical asymptote. However,

$\lim_{x \rightarrow \infty} \frac{4}{x^2+1} = 0$ , so we expect a horizontal asymptote at  $y = 0$ . The graph confirms this.

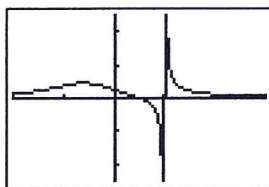


$[-5, 5]$  by  $[0, 5]$

61. The quotient  $\frac{4x-4}{x^3-8}$  does not exist at  $x = 2$ ,

so we expect a vertical asymptote there. Similarly,

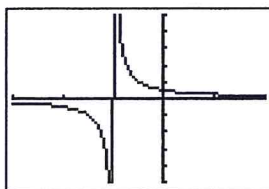
$\lim_{x \rightarrow \infty} \frac{4x-4}{x^3+8} = 0$ , so we expect a horizontal asymptote at  $y = 0$ . The graph confirms these asymptotes.



$[-4, 6]$  by  $[-5, 5]$

62. The quotient  $\frac{2x-4}{x^2-4} = \frac{2(x-2)}{(x-2)(x+2)} = \frac{2}{x+2}$ . Since

$x = 2$  is a removable discontinuity, we expect a vertical asymptote at only  $x = -2$ . Similarly,  $\lim_{x \rightarrow \infty} \frac{2}{x+2} = 0$ , so we expect a horizontal asymptote at  $y = 0$ . The graph confirms these asymptotes.



$[-6, 4]$  by  $[-10, 10]$