Chapter 1
Technology Exercises

77–79 Mentally sketch the graph of the given function by identifying the basic shape that has been shifted, reflected, stretched, or compressed. Then use a graphing utility to graph the function and check your reasoning.

77. $f(x) = \ln(x+1) + 2$

78. $f(x) = -\dfrac{2}{x-3} + 1$

79. $f(x) = \sin \pi x - 1$

80. The annual expenditures (in millions of dollars) for a corporation are given in the table below.

Annual Expenditures

Year	2017	2018	2019	2020	2021	2022
Expenditures (in millions)	$16.2	$17.1	$18.8	$19.6	$21.1	$22.9

a. Find the least-squares line of best fit for the data. (Let $x = 0$ correspond to the year 2017.)

b. Estimate the expenditures for 2023.

81–82 Use a graphing utility to approximate the solution(s) of the given equation, rounded to four decimal places. (**Hint:** Zoom in on the x-intercepts or points of intersection as appropriate for each equation.)

81. $x^5 - x^3 - 3 = 0$

82. $x^2 + 6 = 2^{x+1}$

83–84 Use a graphing utility to graph the given function, and describe the characteristics of the graph as c varies. Use different viewing windows.

83. $u(x) = \dfrac{1 - e^{c/x}}{1 + e^{c/x}}$

84. $v(x) = \dfrac{x}{c^2}\sqrt[4]{c^4 - x^4}$