50. $[x - (y + x)] - (2x - [3x - (x - y)] + y)$
51. $[x - (3x + 2)] - (2x - [x - (4 + x)] - 1)$
52. $-(2y - [2y - 4y + (y - 2)] + 1) + [2y - (4 - y) + 1]$

■ *Evaluate each polynomial for the given values of the variable. See Example* 9.

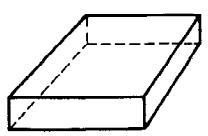
53. $x^3 - 3x^2 + x + 1$; a. $x = 2$, b. $x = -2$
54. $2x^3 + x^2 - 3x + 4$; a. $x = 3$, b. $x = -3$
55. $t^2 + 3t + 1$; a. $t = \frac{1}{2}$, b. $t = -\frac{1}{3}$
56. $2t^2 - t + 1$; a. $t = \frac{1}{4}$, b. $t = -\frac{1}{2}$
57. $3z^3 - 2z^2 + 3$; a. $z = 1.8$, b. $z = -2.6$
58. $z^3 + 4z - 2$; a. $z = 2.1$, b. $z = -3.1$
59. $a^6 - a^5$; a. $a = -1$, b. $a = -2$
60. $a^5 - a^4$; a. $a = -1$, b. $a = -2$

■ *For Problems* 61 *and* 62 *use the following fact. If an object is thrown into the air from a height* s_0 *above the ground with an initial velocity* v_0*, then its height* t *seconds later is given by the polynomial* $-\frac{1}{2}gt^2 + v_0t + s_0$. *See Example* 10.

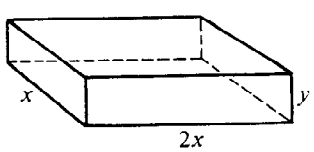
61. a. Write a polynomial that gives the height of a tennis ball thrown into the air with an initial velocity of 16 feet per second from a height of 8 feet. The value of g is 32.
    b. Find the height of the tennis ball at $t = 1$ second and at $t = \frac{1}{2}$ second.
62. a. Write a polynomial that gives the height of a satellite launched with an initial velocity of 10,000 meters per second from the top of a booster rocket 46 meters high. The value of g is 9.8.
    b. Find the height of the satellite at $t = 4$ seconds and at $t = 10$ seconds.

■ *For Problems* 63–66 *see Example* 11.

63. a. Write a polynomial that gives the surface area of a box with a square base and top.
    b. What is the surface area in square inches of a box of length and width 18 inches and height 8 inches? What is the surface area in square feet?



64. a. Write a polynomial that gives the surface area of an empty swimming pool that is of uniform depth and twice as long as it is wide.
    b. What is the surface area in square feet of the pool if its width is 12 feet and its depth is 6 feet? What is its surface area in square yards?



65. a. The sides and top of the box in Problem 63a are constructed from cardboard that costs 2 cents per square inch, and its base is constructed from reinforced cardboard that costs 10 cents per square inch. Write a polynomial that gives the cost of the box.
    b. How much does the box in Problem 63b cost?