47. If $w'(t)$ is the rate of growth of a child in pounds per year, what does $\int_5^{10} w'(t)\,dt$ represent?

48. The current in a wire is defined as the derivative of the charge: $I(t) = Q'(t)$. (See Example 3 in Section 3.3.) What does $\int_a^b I(t)\,dt$ represent?

49. If oil leaks from a tank at a rate of $r(t)$ gallons per minute at time t, what does $\int_0^{120} r(t)\,dt$ represent?

50. A honeybee population starts with 100 bees and increases at a rate of $n'(t)$ bees per week. What does $100 + \int_0^{15} n'(t)\,dt$ represent?

51. In Section 4.8 we defined the marginal revenue function $R'(x)$ as the derivative of the revenue function $R(x)$, where x is the number of units sold. What does $\int_{1000}^{5000} R'(x)\,dx$ represent?

52. If $f(x)$ is the slope of a trail at a distance of x miles from the start of the trail, what does $\int_3^5 f(x)\,dx$ represent?

53–54 ☐ The velocity function (in meters per second) is given for a particle moving along a line. Find (a) the displacement and (b) the distance traveled by the particle during the given time interval.

53. $v(t) = 3t - 5, \quad 0 \leqslant t \leqslant 3$

54. $v(t) = t^2 - 2t - 8, \quad 1 \leqslant t \leqslant 6$

Bureau of Labor Statistics and measures prices of items in a "representative market basket" of typical urban consumers. The table gives the inflation rate in the United States from 1981 to 1997. Write the total percentage increase in the CPI from 1981 to 1997 as a definite integral. Then use the Midpoint Rule to estimate it.

t	$r(t)$	t	$r(t)$
1981	10.3	1990	5.4
1982	6.2	1991	4.2
1983	3.2	1992	3.0
1984	4.3	1993	3.0
1985	3.6	1994	2.6
1986	1.9	1995	2.8
1987	3.6	1996	2.9
1988	4.1	1997	2.3
1989	4.8		

61. The marginal cost of manufacturing x yards of a certain fabric is $C'(x) = 3 - 0.01x + 0.000006x^2$ (in dollars per yard). Find the increase in cost if the production level is raised from 2000 yards to 4000 yards.

62. Water leaked from a tank at a rate of $r(t)$ liters per hour, where the graph of r is as shown. Express the total amount of water