65. *Body-Heat Loss* The description of body-heat loss due to convection involves a coefficient of convection K_c, which depends on wind speed s according to the equation $K_c = 4\sqrt{4s + 1}$.

a. Is K_c a function of s?

b. What is the domain of the function defined by this equation?

c. What restrictions do the physical nature of the model put on the domain?

68. *Demand* Suppose the number of units of a product that is demanded by consumers is given as a function of p by

$$q = \frac{100}{\sqrt{2p + 1}}$$

where p is the price charged per unit.

a. What is the domain of the function defined by this equation?

b. What should the domain and range of this function be to make sense in the application?

70. *Height of a Bullet* The height of a bullet shot into the air is given by $S(t) = -4.9t^2 + 98t + 2$, where t is the number of seconds after it is shot and $S(t)$ is in meters.

a. Find $S(0)$ and interpret it.

b. Find $S(9)$, $S(10)$, and $S(11)$.

c. What appears to be happening to the bullet at 10 seconds? Evaluate the function at some additional times near 10 seconds to confirm your conclusion.

↑ Section 1.1 problems

37. *Marijuana Use* The percent p of high school seniors using marijuana daily can be related to x, the number of years after 1990, by the equation $30p - 19x = 30$.

a. Find the x-intercept of the graph of this function.

b. Find and interpret the p-intercept of the graph of this function.

c. Graph the function, using the intercepts. What values of x on the graph represent years 1990 and after?

41. *Cigarette Use* For the years 1991–2006, the percent p of high school seniors who have tried cigarettes can be modeled by $p = 75.751 - 0.743t$, where t is the number of years after 1991.

a. Is the rate of change of the percent positive or negative?

b. How fast is the percent of seniors who tried cigarettes during this period changing? Use the units in the problem in your answer.
(Source: monitoringthefuture.org)

58. *Marginal Cost* Suppose the monthly total cost for the manufacture of 19-inch television sets is $C(x) = 2546 + 98x$, where x is the number of TVs produced each month.

a. What is the slope of the graph of the total cost function?

b. What is the marginal cost for the product?

c. Interpret the marginal cost for this product.

↑ Section 1.3 Problems