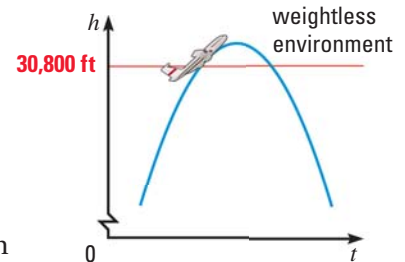


49. **MULTIPLE REPRESENTATIONS** For the period 1997–2002, the number  $y$  (in thousands) of 16- and 17-year-olds employed in the United States can be modeled by the function  $y = -46.7x^2 + 169x + 2650$  where  $x$  is the number of years since 1997.

- a. **Solving an Equation** Write and solve an equation to find the year during which 2,500,000 16- and 17-year-olds were employed.
- b. **Drawing a Graph** Graph the function on a graphing calculator. Use the *trace* feature to find the year when 2,500,000 16- and 17-year-olds were employed. Use the graph to check your answer from part (a).

50. **TAKS REASONING** NASA creates a weightless environment by flying a plane in a series of parabolic paths. The height  $h$  (in feet) of a plane after  $t$  seconds in a parabolic flight path can be modeled by the graph of  $h = -11t^2 + 700t + 21,000$ . The passengers experience a weightless environment when the height of the plane is greater than or equal to 30,800 feet. Find the period of weightlessness on such a flight. *Explain.*



51. **CHALLENGE** Mineral deposits have formed a uniform coating that is 4 millimeters thick on the inside of a water pipe. The cross-sectional area of the pipe has decreased by 10%. What was the original diameter of the pipe (to the nearest tenth of a millimeter)?



## MIXED REVIEW FOR TAKS

**TAKS PRACTICE** at classzone.com

### REVIEW

Lesson 8.1;  
TAKS Workbook

52. **TAKS PRACTICE** Which expression is equivalent to  $0.5((2x)^3)^2$ ?  
*TAKS Obj. 5*

(A)  $32x^3$       (B)  $16x^5$       (C)  $32x^6$       (D)  $256x^9$

### REVIEW

TAKS Preparation  
p. 420;  
TAKS Workbook

53. **TAKS PRACTICE** A scale model of a house has a scale of 1 foot : 13.5 feet. If the actual house is 36 feet tall, how tall is the scale model? *TAKS Obj. 7*

(F) 30 in.      (G) 32 in.      (H) 36 in.      (J) 486 in.

## QUIZ for Lessons 10.4–10.6

Solve the equation using square roots. (p. 652)

1.  $3x^2 - 48 = 0$

2.  $-6x^2 = -24$

3.  $x^2 + 5 = 16$

Solve the equation by completing the square. (p. 663)

4.  $x^2 + 2x + 6 = 0$

5.  $x^2 + 10x - 12 = 0$

6.  $x^2 - 8x = -6$

7.  $x^2 - 12x = 30$

8.  $x^2 - 5x = -\frac{9}{4}$

9.  $x^2 + x = -7.75$

Solve the equation using the quadratic formula. (p. 671)

10.  $x^2 + 4x + 1 = 0$

11.  $-3x^2 + 3x = -1$

12.  $4x^2 - 11x = 3$

