

38. **DRAG RACING** For a given total weight, the speed of a car at the end of a drag race is a function of the car's power. For a car with a total weight of 3500 pounds, the speed  $s$  (in miles per hour) can be modeled by  $s = 14.8\sqrt[3]{p}$  where  $p$  is the power (in horsepower). Graph the model. Then determine the power of a 3500 pound car that reaches a speed of 200 miles per hour.

39. **MULTIPLE REPRESENTATIONS** Under certain conditions, a skydiver's terminal velocity  $v_t$  (in feet per second) is given by

$$v_t = 33.7\sqrt{\frac{W}{A}}$$

where  $W$  is the weight of the skydiver (in pounds) and  $A$  is the skydiver's cross-sectional surface area (in square feet). Note that skydivers can vary their cross-sectional surface area by changing positions as they fall.

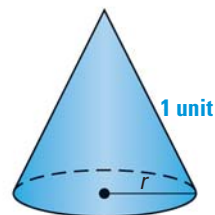


- a. **Writing an Equation** Write an equation that gives  $v_t$  as a function of  $A$  for a skydiver who weighs 165 pounds.  
 b. **Making a Table** Make a table of values for the equation from part (a).  
 c. **Drawing a Graph** Use your table to graph the equation.
40. **CHALLENGE** The surface area  $S$  of a right circular cone with a slant height of 1 unit is given by  $S = \pi r + \pi r^2$  where  $r$  is the cone's radius.

- a. Use completing the square to show the following:

$$r = \frac{1}{\sqrt{\pi}}\sqrt{S + \frac{\pi}{4}} - \frac{1}{2}$$

- b. Graph the equation from part (a) using a graphing calculator.  
 c. Find the radius of a right circular cone with a slant height of 1 unit and a surface area of  $\frac{3\pi}{4}$  square units.



**MIXED REVIEW FOR TAKS** **TAKS PRACTICE** at classzone.com

**REVIEW**

Lesson 4.10;  
TAKS Workbook

41. **TAKS PRACTICE** Which equation best represents the relationship between  $x$  and  $y$  shown in the table? **TAKS Obj. 1**

$x$	$y$
0	0
1	37
2	58
3	63

- (A)  $y = 25x + 12$   
 (B)  $y = 45x - 8x^2$   
 (C)  $y = 8x^2 - 45x$   
 (D)  $y = 70 - 33x^3$

**REVIEW**

Skills Review  
Handbook p. 996;  
TAKS Workbook

42. **TAKS PRACTICE** The two polygons are similar. What is the value of  $y$ ? **TAKS Obj. 6**

- (F) 24                      (G) 134  
 (H) 168                    (J) 204

