

74. **CHALLENGE** Under certain conditions, the wind speed  $s$  (in knots) at an altitude of  $h$  meters above a grassy plain can be modeled by this function:

$$s(h) = 2 \ln(100h)$$

- a. By what factor does the wind speed increase when the altitude doubles?
- b. Show that the given function can be written in terms of common logarithms as  $s(h) = \frac{2}{\log e}(\log h + 2)$ .



## MIXED REVIEW FOR TAKS

**TAKS PRACTICE** at classzone.com

### REVIEW

Skills Review  
Handbook  
p. 1002;  
TAKS Workbook

### REVIEW

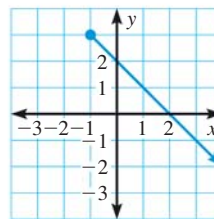
Lesson 2.1;  
TAKS Workbook

75. **TAKS PRACTICE** Which of the following is *not* an example of a Pythagorean triple? **TAKS Obj. 10**

- (A) 8, 15, 17      (B) 48, 64, 80      (C) 7, 23, 25      (D) 11, 60, 61

76. **TAKS PRACTICE** Which inequality best describes the range of the function whose graph is shown? **TAKS Obj. 2**

- (F)  $y \leq -1$       (G)  $y \leq 3$   
(H)  $y \geq -1$       (J)  $y \geq 3$



## QUIZ for Lessons 7.4–7.5

Evaluate the logarithm without using a calculator. (p. 499)

1.  $\log_4 16$       2.  $\log_5 1$       3.  $\log_8 8$       4.  $\log_{1/2} 32$

Graph the function. State the domain and range. (p. 499)

5.  $y = \log_2 x$       6.  $y = \ln x + 2$       7.  $y = \log_3(x + 4) - 1$

Expand the expression. (p. 507)

8.  $\log_2 5x$       9.  $\log_5 x^7$       10.  $\ln 5xy^3$       11.  $\log_3 \frac{6y^4}{x^8}$

Condense the expression. (p. 507)

12.  $\log_3 5 - \log_3 20$       13.  $\ln 6 + \ln 4x$       14.  $\log_6 5 + 3 \log_6 2$       15.  $4 \ln x - 5 \ln x$

Use the change-of-base formula to evaluate the logarithm. (p. 507)

16.  $\log_3 10$       17.  $\log_7 14$       18.  $\log_5 24$       19.  $\log_8 40$

20. **SOUND INTENSITY** The sound of an alarm clock has an intensity of  $I = 10^{-4}$  watts per square meter. Use the model  $L(I) = 10 \log \frac{I}{I_0}$ , where  $I_0 = 10^{-12}$  watts per square meter, to find the alarm clock's loudness  $L(I)$ . (p. 507)

