ERCISES

For more practice, see *Extra Practice.*

ice and Problem Solving

ractice by Example

Find each percent of change. Describe the percent of change as an increase or decrease. If necessary, round to the nearest tenth.

Example 1 (page 204)

1. \$2 to \$3 **2.** \$3 to \$2 **3.** 4 ft to 5 ft **4.** 5 ft to 4 ft

5. 9 m to 12 m **6.** 12 cm to 9 cm **7.** 12 in. to 15 in. **8.** 15 lb to 18 lb

9. 4.5 cm to 8.3 cm **10.** \$38 to \$65 **11.** \$12.20 to \$4.80 **12.** 125 lb to 143 lb

Example 2 (page 205)

13. Physical Therapy Physical therapists measure strength on a dynamometer, which uses a unit called a foot-pound. Suppose you increase the strength in your elbow joint from 90 foot-pounds to 125 foot-pounds. Find the percent of increase to the nearest percent.

14. Environment From 1999 to 2000, the number of days of unhealthy air quality in Charlotte, North Carolina, dropped from 5 to 2. Find the percent of decrease in the number of days of unhealthy air.

Example 3 (page 205)

Find the greatest possible error for each measurement.

15. 14 ft **16.** 3.5 cm **17.** 56.38 g **18.** 17 in.

Example 4 (page 205)

Find the minimum and maximum possible areas for rectangles with the following measured areas.

19. 4 cm × 6 cm **20.** 7 mi × 8 mi **21.** 6 in. × 9 in.

22. 12 km × 5 km **23.** 18 in. × 15 in. **24.** 23 km × 14 km

Example 5 (page 206)

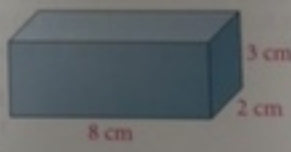
Find the percent error of each measurement.

25. 2 cm **26.** 0.2 cm **27.** 4 cm **28.** 0.4 cm

Example 6 (page 206)

29. The table below shows the measured dimensions of the prism and the maximum and minimum possible values based on the greatest possible error.

Dimensions	ℓ	w	h
Measured	8	3	2
Maximum	8.5	3.5	2.5
Minimum	7.5	2.5	1.5



a. Find the measured volume. **b.** Find the maximum volume.

c. Find the minimum volume. **d.** Find the greatest possible error.

e. What is the percent error? Round to the nearest percent.

Apply Your Skills

Find each percent of change. Describe the percent of change as an increase or decrease. Round to the nearest percent.

30. 26 to 20 **31.** \$4.95 to \$3.87 **32.** 21 in. to 54 in.

33. 2 ft to $5\frac{1}{2}$ ft **34.** \$24,000 to \$25,000 **35.** 18 to $17\frac{1}{2}$

36. 8.99 to 3.99 **37.** 132 lb to 120 lb **38.** \$42.69 to \$49.95

39. Sports In the 1988 Olympics, Florence Griffith-Joyner of the United States won the women's 100-meter run in 10.54 seconds. In 2000, Marion Jones, also of the United States, won with a time of 10.75 seconds. Find the percent of change in the winning times. Round to the nearest percent.

Real-World Connection
Atlantic cyclones can be tropical depressions, tropical storms, or hurricanes.

40. Meteorology In 1999, the National Oceanographic and Atmospheric Administration reported a total of 16 Atlantic cyclones. In 2000, there were 19 Atlantic cyclones. Find the percent of change in the number of cyclones from 1999 to 2000. Round to the nearest percent.

41. If you want accuracy of 0.5 mm, what measuring unit should you use?

42. Critical Thinking An item costs \$64. The price is increased by \$10, then reduced by \$10. Is the percent increase equal to the percent of decrease? Explain your answer.

43. Critical Thinking An item costs \$64. The price is increased by 10%, then reduced by 10%. Is the final price equal to the original price? Explain.

44. Open-Ended Write a word problem involving percent of change. Include your solution.

Find the minimum and maximum possible areas for rectangles with the following measured dimensions. Round to the nearest tenth.

45. 4.1 cm × 6.1 cm **46.** 7.0 mi × 8.4 mi **47.** 6.01 in. × 9.02 in.

48. Sales Suppose that you are selling sweatshirts for a class fund-raiser. The wholesaler charges you \$8 for each sweatshirt.

a. You charge \$16 for each sweatshirt. Find the percent of increase.

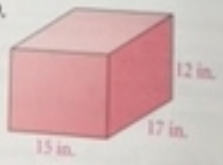
b. Generalize your answer to part (a). Doubling a price is the same as a ? percent of increase.

c. After the fund-raiser is over, you reduce the price on the remaining sweatshirts to \$8. Find the percent of decrease.

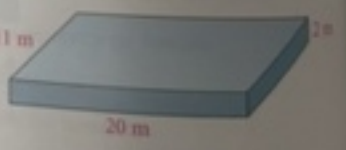
d. Generalize your answer to part (c). Cutting a price in half is the same as a ? percent of decrease.

Find the percent error in calculating the volume of each rectangular prism. Round to the nearest percent.

49.



50.



51. Writing Explain how to find the percent error when calculating the area of a rectangle.

52. Error Analysis Jorge found the percent of change from \$15 to \$10 to be 50%. What error did he make?