

Chapter 4 Exercises

Answer each question. Round your answer to the nearest hundredth, if necessary.

1. If six out of every ten individuals in a population carry a gene for a defective enzyme, how many individuals carry the normal gene in a population of 900?
2. As part of a house renovation, the total cost to remodel the bathrooms was \$4750. The total cost of bathroom fixtures was \$3750. Write the cost of the fixtures and the total cost of the bathroom renovation as a proportion in lowest terms.
3. The ratio of apples to oranges in a basket is 3 to 4. What fraction of fruit in the basket consists of apples?
4. Suppose that the ratio of males to females in the sales field of a large company is 4:5. If there are 81 sales representatives in the company, how many are male and how many are female?
5. If Whitt wins 3 out of every 4 games of Solitaire that he plays on his computer, how many games would he need to play so that he wins 51 games?
6. Your dinner bill was \$30.00. If you leave a 15% tip, how much will this be?
7. If you wish to leave a 20% tip and your bill is \$58.50, how much tip will you leave?
8. A garden center is having a Memorial Day sale on flowers. All flowers are 15% off, but if you buy 3 flats of flowers, you save an additional 10%. How much would you pay if you purchase 3 flats of flowers that are priced at \$12 per flat?
9. The wholesale price of a laptop is \$525. The price of the laptop is marked up by 45% before it is listed as for sale on the store website. During a back-to-school sale, the laptop is marked down by 15%. What is the price of the laptop during the back-to-school sale?
10. Nate just moved from a state with an 8% sales tax to a state with a 6% sales tax. If he buys a shirt for \$35.00, how much less tax does he pay in his new state?
11. Last year, a new computer sold for \$1600. This year, the same computer can be purchased for \$1200. What percentage discount is being given from the previous year?
12. Suzanne's salary grew from \$40,000 in 2000 to \$56,000 in 2012. During the same time period, Mike's salary grew from \$38,000 to \$53,000. Whose salary grew more in absolute change? In percentage change?

Write each rate described and then convert it to a unit rate.

13. The university reported that there were 42 freshmen in the entering class for every 3 advisors.
14. Coach Burge wanted the entire class to be able to do 90 sit-ups in 2 minutes by the end of the semester.

Solve each problem. Round your answer to the nearest hundredth, if necessary.

15. Which is the better value for the money, \$5.99 for a package of 8 cold remedy capsules or \$2.85 for 2 capsules? Why?
16. Suppose at bulk rate, instant potato flakes cost 12.04 cents, or \$0.1204, per ounce.
 - a. If a box costs \$77.05, how many pounds of potato flakes are in the box? (Hint: There are 16 ounces in a pound.)
 - b. What would a 2-pound box of potato flakes cost?
17. To treat the water in a swimming pool, it is recommended to add 6.4 ounces of chlorine per 5000 gallons of water. How much chlorine is needed to treat the water in a pool that holds 24,000 gallons?
18. An advertisement for a hybrid sedan claims that the car can travel 600 miles on a full tank of gas. IF the fuel tank capacity for the sedan is 11.4 gallons, what is the miles per gallon that the sedan gets?
19. Convert the following rainfall measurements from inches per hour to millimeters per minute. Note that 1 inch is equivalent to 25.4 mm.
 - a. 0.5 inches per hour
 - b. 2 inches per hour
 - c. 0.01 inches per hour
20. A vehicle requires 0.25 gallons of fuel to travel 1 kilometer. Determine how many gallons per mile are required.
21. A restaurant sells soup in a quantity of 20 fluid ounces per container. Determine this amount as cups per container.
22. A garden snail can travel 6 centimeters per minute. Determine the speed of the snail in inches per hour.
23. A sculpture for the lawn in front of the new art gallery is 38.5 feet long. A model is being made for a display inside the gallery. The model is 14.2 inches long. Based on this scale, how long would an actual bench be on the lawn if the bench in the scale model is 2 inches?

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24. A 180-pound student burns 120 calories every half hour of playing ultimate Frisbee. How many calories would he burn in
- 10 minutes?
 - One hour and 45 minutes?
25. On a G scale model train, each inch of length corresponds to 25 inches of length on the actual model train. Find the constant of proportionality for the length on the model train to the length on the actual train.
26. A force of 144 newtons stretches a spring 4 meters.
- What is the constant of proportionality?
 - How much force would be needed to stretch the spring 7.5 meters?
27. A model car has a length of 5.75 inches and a width of 2.25 inches. Find the length of the actual car if the actual car has a width of 72 inches.