5.2 Exercises

Write each rate as a fraction in lowest terms. See Example 1.

1. 10 cups for 6 people

2. $12 for 30 pens

3. 15 feet in 35 seconds

4. 100 miles in 30 hours

5. 72 miles on 4 gallons

6. 132 miles on 8 gallons

Find each unit rate. See Example 2.

7. $60 in 5 hours

8. $2500 in 20 days

9. 7.5 pounds for 6 people

10. 44 bushels from 8 trees

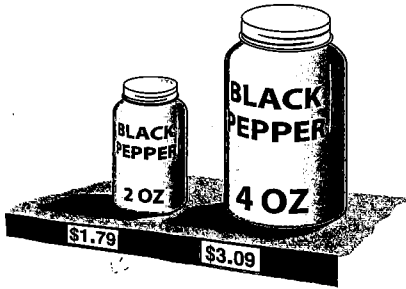**11.** $413.20 for 4 days

12. $74.25 for 9 hours

Earl kept the following record of the gas he bought for his car. For each entry, find the number of miles he traveled and the unit rate. Round your answers to the nearest tenth.

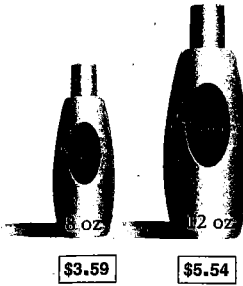|	Date	Odometer at Start	Odometer at End	Miles Traveled	Gallons Purchased	Miles per Gallon
13.	2/4	27,432.3	27,758.2		15.5	
14.	2/9	27,758.2	28,058.1		13.4	
15.	2/16	28,058.1	28,396.7		16.2	
16.	2/20	28,396.7	28,704.5		13.3	

Source: Author's car records.

Find the best buy (based on the cost per unit) for each item. See Example 3. (Source: Cub Foods.)

17. Black pepper

18. Shampoo

19. Cereal

13 ounces for $2.80
15 ounces for $3.15
18 ounces for $3.98

20. Soup

2 cans for $1.90
3 cans for $2.89
5 cans for $4.58

21. Chunky peanut butter

12 ounces for $1.29
18 ounces for $1.79
28 ounces for $3.39
40 ounces for $4.39

22. Baked beans

8 ounces for $0.59
16 ounces for $0.77
21 ounces for $0.99
28 ounces for $1.36

23. Suppose you are choosing between two brands of chicken noodle soup. Brand A is $0.88 per can and Brand B is $0.98 per can. But Brand B has more chunks of chicken in it. Which soup is the better buy? Explain your choice.

24. A small bag of potatoes costs $0.19 per pound. A large bag costs $0.15 per pound. But there are only two people in your family, so half the large bag would probably rot before you used it up. Which bag is the better buy? Explain.

Solve each application problem. See Examples 2–4.

25. Makesha lost 10.5 pounds in six weeks. What was her rate of loss in pounds per week?

26. Enrique's taco recipe uses three pounds of meat to feed 10 people. Give the rate in pounds per person.

27. Russ works 7 hours to earn $85.82. What is his pay rate per hour?

28. Find the cost of 1 gallon of gas if 18 gallons cost $33.48.

The table lists information about three long-distance calling cards. The connection fee is charged each time you make a call, no matter how long the call lasts. Use the table to answer Exercises 29–32. Round answers to the nearest thousandth when necessary.

LONG-DISTANCE CALLING CARDS (U.S.)

Card Name	Cost per Minute	Connection Fee
Radiant Penny	$0.01	$0.39
IDT Special	0.022	0.14
Access America	0.047	0.00

Source: www.1callcard.com

29. (a) Find the *actual* total cost, including the connection charge, for a five-minute call using each card.
   (b) Find the cost per minute for this call using each card and select the best buy.

30. (a) Find the *actual* total cost, including the connection charge, for a 30-minute call using each card.
   (b) Find the cost per minute for this call using each card and select the best buy.
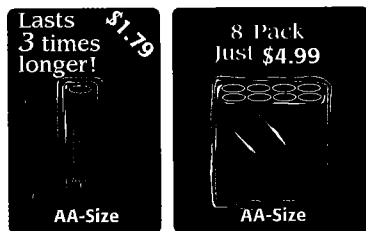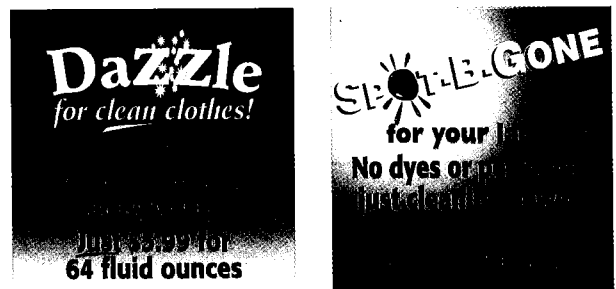
31. Find the *actual* total cost per minute for a 15-minute call and a 25-minute call using each card. Then select the best buy for each call.

32. All the cards round calls up to the next full minute.
   (a) Suppose you call the wrong number. How much would you pay for this 40-*second* call on each card?
   (b) How much would you save on this call by using Access America instead of Radiant Penny?

33. If you believe the claims that some batteries last longer, which is the better buy?

Lasts 3 times longer!   *$1.79*
AA-Size

8 Pack Just $4.99
AA-Size

34. Which is the better buy, assuming these laundry detergents both clean equally well?

DaZZle *for clean clothes!*
64 fluid ounces

SPOT-B-GONE for your
No dyes or

35. Three brands of cornflakes are available. Brand G is priced at $2.39 for 10 ounces. Brand K is $3.99 for 20.3 ounces and Brand P is $3.39 for 16.5 ounces. You have a coupon for 50¢ off Brand P and a coupon for 60¢ off Brand G. Which cereal is the best buy based on cost per unit?

36. Two brands of facial tissue are available. Brand K is specially priced at three boxes of 175 tissues each for $5. Brand S is priced at $1.29 per box of 125 tissues. You have a coupon for 20¢ off one box of Brand S and a coupon for 45¢ off one box of Brand K. How can you get the best buy on one box of tissue?

RELATING CONCEPTS (EXERCISES 37–40) For Individual or Group Work

On the first page of this chapter, we said that unit rates can help you get the best deal on cell phone service. Use the information in the table to work Exercises 37–40 in order.

Company	Anytime Minutes	One-time Activation Fee	Monthly Charge	Termination Fee
Verizon	400	$35	$59.99	$175
T-Mobile	600	$35	$39.99	$200
Nextel	500	$35	$45.99	$200
Sprint	500	$36	$55	$150

Source: Advertisements appearing in *Minneapolis Star Tribune.*

Notes:

1. All companies require that you sign a contract for one year of service and charge a one-time termination fee if you quit early.
2. Unused minutes cannot be carried over to the next month.

37. How much will each company's activation fee cost you on a *monthly* basis during the one-year contract?

38. All the plans allow unlimited calls on nights and weekends, so you would be using the "anytime minutes" on weekdays. Figure out the average number of weekdays per month. Then, for each plan, how many minutes could you use per weekday? Round to the nearest whole minute.

39. Find the actual average cost per "anytime minute" during the one-year contract for each company, including the activation fee. Assume you use all the minutes and no more. Decide how to round your answers so you can find the best buy.

40. Suppose that after two months you canceled your service because you found that you only used 100 "anytime minutes" per month. Under those conditions, find the actual cost per "anytime minute" for each company, to the nearest cent.