

**Facts to Know**

All the problems in this unit can be solved using basic operations of subtracting, adding, multiplying or dividing fractions, decimals, and percents. Use them as a review of your fundamental skills.

**Sample A**

Mrs. King bought a dozen muffins for the students in her classroom. If she bought,  $\frac{1}{2}$  of a dozen chocolate chip,  $\frac{1}{4}$  of a dozen apple cinnamon, and  $\frac{1}{4}$  dozen banana nut, how many of each muffin did she buy?

*Hint: Remember that 1 dozen muffins = 12 muffins*

First, calculate what fraction of the 1 dozen muffins is of what variety.

$$\begin{aligned} \frac{1}{2} \text{ dozen chocolate chip} &= 6 \text{ chocolate chip muffins} \\ \frac{1}{4} \text{ dozen apple cinnamon} &= 3 \text{ apple cinnamon muffins} \\ \frac{1}{4} \text{ dozen banana nut} &= 3 \text{ banana nut muffins} \end{aligned}$$

Then, add the different types of muffins and see if they add up to a dozen muffins.

$$6 \text{ chocolate chip} + 3 \text{ apple cinnamon} + 3 \text{ banana nut} = 12 \text{ muffins}$$

**Sample B**

Kenny and Kendra each received \$10 to spend at the movies. Kenny bought his ticket for \$4.50 and then bought a small soda for \$2.00 and popcorn for \$2.50. How much money did Kenny spend, and did he have any money left? Kendra spent \$4.50 for her ticket and then paid \$1.75 for red licorice sticks and \$2.00 for a small soda. How much money did Kendra spend, and did she have any money left?

| Kenny  |   | Kendra  |   |
|--|---|---|---|
| First, add up all the money that Kenny spent at the movie theater.   | Next, subtract the total amount that Kenny spent from the \$10 that he was given. | Now, add up all the money that Kendra spent at the movie theater.   | Next, subtract the total amount that Kendra spent from the \$10 that she was given. |
| $\begin{array}{r} \$4.50 \text{ ticket} \\ \$2.00 \text{ small soda} \\ + \$2.50 \text{ popcorn} \\ \hline \$9.00 \end{array}$ | $\begin{array}{r} \$10.00 \\ - \$9.00 \\ \hline \$1.00 \end{array}$               | $\begin{array}{r} \$4.50 \text{ ticket} \\ \$1.75 \text{ red licorice} \\ \$2.00 \text{ small soda} \\ \hline \$8.25 \end{array}$ | $\begin{array}{r} \$10.00 \\ - \$8.25 \\ \hline \$1.75 \end{array}$                 |
| So Kenny spent \$9.00 at the theater and had \$1.00 left.  |   | So Kendra spent \$8.25 at the theater and had \$1.75 left.  |   |

**Directions:** Using the information on page 36 and the previous units as reference, solve the problems on this page. (*Suggestion:* Challenge yourself and see how quickly you can complete them. Can you solve all 30 problems in an hour and a half?)

1. Tiffany's pan of fudge had 12 pieces. She sold  $\frac{1}{3}$  of the fudge. How many pieces did she sell? \_\_\_\_\_
2. Andrew needed 3 quarts of punch for the bake sale. He had  $\frac{3}{4}$  quart in one container,  $\frac{1}{2}$  quart in another container, and  $1\frac{1}{4}$  quart in another container. How much punch did he have? \_\_\_\_\_ Did he have enough punch for the bake sale? \_\_\_\_\_
3. How many dollars do you have if you have 6 quarters, 4 nickels, and 3 dimes? \_\_\_\_\_
4. The local store carries two kinds of veggie hot dogs:

Bark 'n' Bite Hot Dogs: 8 hot dogs for \$3.20

Good Dog Hot Dogs: 6 hot dogs for \$3.00

- a. How much does one Bark 'n' Bite hot dog cost? \_\_\_\_\_
  - b. How much does one Good Dog hot dog cost? \_\_\_\_\_
5. The town band purchased a bass drum for \$236.95, a trumpet for \$165.39, and a saxophone for \$207.10. What was the total cost of the instruments? \_\_\_\_\_
  6. The fourth grade raised \$67.23 for the play costumes; the fifth grade raised \$87.23; the sixth grade raised \$108.45; and the seventh grade raised \$154.39. What was the total amount of their contribution? \_\_\_\_\_
  7. Gabriel sold cookie boxes to raise money for his summer camp trip. He sold 8 boxes at \$3.49 per box, 6 boxes at \$4.49 per box, and 12 boxes at \$2.98 per box. What was the total of his sales? \_\_\_\_\_
  8. A bag of tortilla chips costs \$3.49, and a jar of hot salsa costs \$1.79. How much will 4 bags of chips and 3 jars of salsa cost? \_\_\_\_\_
  9. Luke ordered 6 paperback books and 3 animal posters from a catalog. Each book cost \$4.95. The posters cost \$8.95 each. How much did he spend in all? \_\_\_\_\_
  10. Jason bought 6 packs of baseball cards and paid \$7.56. If each package cost the same amount, what was the cost of each package of cards? \_\_\_\_\_
  11. If you buy an 18-ounce bottle of hot sauce, the cost is 68 cents. How much does the hot sauce cost per ounce? (Round to nearest hundredth.) \_\_\_\_\_
  12. At a school luncheon, each pupil was served  $\frac{1}{2}$  of a grapefruit. Thirty-two pupils were there. How many grapefruits were needed? \_\_\_\_\_
  13. If 5 boys share a cantaloupe equally, is each boy's share more than  $\frac{1}{4}$  of a cantaloupe? \_\_\_\_\_

14. Here's the lunch menu.

| Lunch Menu                                     |        |
|--|--------|
| GIANT peanut butter and jelly sandwich . . . . | \$2.50 |
| Veggie Burger . . . . .                        | \$3.25 |
| French Fries . . . . .                         | \$2.25 |
| Salad . . . . .                                | \$2.75 |
| Fruit Shake . . . . .                          | \$2.50 |
| Spaghetti . . . . .                            | \$3.75 |

Paul had a veggie burger and a salad. Todd had a fruit shake, spaghetti, and a salad. Eli had two peanut butter and jelly sandwiches.

How much did each person spend? Paul \_\_\_\_\_ Todd \_\_\_\_\_ Eli \_\_\_\_\_

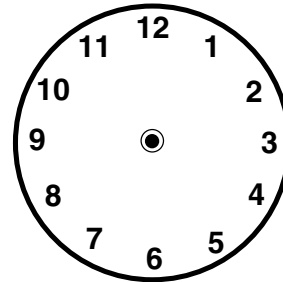
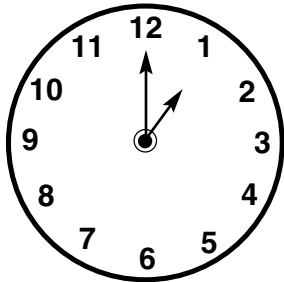
What was the total bill? \_\_\_\_\_

Lunch tickets are \$8.00 (good for 5 lunches)

Milk tickets are \$1.50 (good for 5 milks or juices)

15. Heather brings her bottled water from home, but she buys lunch. What will she pay for 10 lunches? \_\_\_\_\_ What will she pay for 20 lunches? \_\_\_\_\_
16. Mrs. Ochoa's fifth-grade class of 30 voted on their favorite season. If 40% voted for summer, 50% voted for winter, and 10% voted for spring, how many people voted for each season? \_\_\_\_\_
17. Rita saves \$2,500 each year for her retirement. That amount currently represents 8% of her total annual income. What is her annual income? \_\_\_\_\_
18. The Weather Bureau reported that the total rainfall for the first 7 months in Chicago was 30.93 inches. In August 1.02 inches, 2 inches, 1.6 inches, and 0.4 inch of rain fell on four days. What was the total rainfall at the end of the first 8 months? \_\_\_\_\_
19. If Jack and Chip get 24 tries at the carnival ring toss for \$4, how many can they get for \$1? \_\_\_\_\_
20. A grocery store has a sale on bananas. If you buy six bananas, you get the sale price. If the grocer has 489 bananas, how many bunches of six can he sell at his sale price? \_\_\_\_\_ In this case how many can be sold at the regular price? \_\_\_\_\_
21. Darcy worked 40 hours and earned \$240. How much did she earn per hour? \_\_\_\_\_
22. Bruce had 280 pounds of big bolts. He put the same amount into each of 8 boxes. How much will the bolts weigh in each box? \_\_\_\_\_

23. LaTonya worked 6 hours each on Monday, Wednesday, and Friday; she worked 10 hours each on Tuesday and Thursday. How many hours did she work altogether? \_\_\_\_\_  
If she earns \$7 an hour, how much money did she earn? \_\_\_\_\_
24. Which expression shows the total cost of 4 items at \$7 each and 5 items at \$6 each?  
\_\_\_\_\_ What is the total cost? \_\_\_\_\_
- a.  $(4 + 5) \times (6 + 7)$                       c.  $(7 \times 5) - (6 \times 4)$   
b.  $(4 \times \$7) + (5 \times \$6)$                       d.  $(4 + 7) \div (5 + 6)$
25. Which expression shows the total weight of two crates that weigh 25 pounds each, four crates that weigh 40 pounds each, and five crates that each weigh 30 pounds. \_\_\_\_\_  
What is the total weight? \_\_\_\_\_
- a.  $25 + 40 + 30$                                   c.  $(25 \times 4) + (40 \times 30)$   
b.  $(2 + 4 + 5) \times (25 + 40 + 30)$                       d.  $(2 \times 25) + (4 \times 40) + (5 \times 30)$
26. A clock is set correctly at 1:00 P.M. It loses 3 minutes every hour. What will the clock read when the correct time is 10:00 P.M.? \_\_\_\_\_



27. Four boys work together painting houses for the summer. For each house they paint they get \$256.00. If the boys work for 4 months of summer and their expenses are \$152.00 per month, how many houses must they paint for each of them to have one thousand dollars at the end of the summer? \_\_\_\_\_
28. The peel of a banana weighs about  $\frac{1}{8}$  of the total weight of the banana. This is a little heavier than the peel of most fruit. If you buy 3 kg of bananas in a wood basket at \$0.60 per kg, about how much are you paying for the banana peel? \_\_\_\_\_ How much for the banana itself? (Round to the nearest cent.) \_\_\_\_\_
29. James bought a video game for \$29.95. He bought a computer CD-ROM game for \$19.95. Both games were on sale for 25% off the ticketed price. How much did James spend to buy the video game and CD-ROM? \_\_\_\_\_ How much did he save? \_\_\_\_\_
30. Laurel and Joey went shopping for a birthday gift for their parents. They decided to buy a picture frame that costs \$22.50. Laurel paid for 60% of the gift, and Joey paid for 40% of the gift. How much did each person pay for the gift? \_\_\_\_\_



# Answer Key

13. Between the first and second numbers is a difference of 2. Between the second and third, a difference of 4. Between the third and fourth, a difference of 6. And so on. If the pattern were to continue, the next number would be a difference of 8—and 20 valentines would have been exchanged.
14. The first two lines have eight syllables each; the next two have 6 each, and the last line has nine. Also, the 1st, 2nd, and last lines rhyme with each other, and the 3rd and 4th rhyme, too.
15.  $10 + 9 + 8 + 7 = 34$  cans

### Pages 34 and 35

1. a. 21 m;  $9.5 \text{ m}^2$   
b. 12 m;  $9 \text{ m}^2$   
c. 54 m;  $81 \text{ m}^2$   
d. 162 m
2. a. 177 mL  
b. 946 mL  
c. 473 mL  
d. 473 mL  
e. 1.89 mL
3. a.  $84 \text{ ft.}^2$   
b.  $336 \text{ ft.}^2$   
c. 4 quarts
4. Buy by quarts. 1 gallon =  $3.25 \times 4 = \$13.00$
5. a. He has grown six inches in the last three years.  
 $60 \text{ inches} = 5 \text{ feet}$   
 $63 \text{ inches} = 5 \text{ feet and three inches}$   
b.  $66 \text{ inches} = 5 \text{ feet and six inches}$
6. a. Tom, Mary, Paula, and Sam  
b. Sam—167 cm  
Paula—157 cm  
Mary—152 cm  
Tom—147 cm
7. 480 mL
8. one teaspoon of salt  
 $\frac{1}{2} \times 2 = 1$
9. a. .36 feet  
b. 432 inches
10.  $36 \text{ inches} = 1 \text{ yard}$ , 3 yards =  $36 + 36 + 36 = 108 \text{ inches}$
11. 4 boxes will cover 80 feet,  
 $20 \times 4 = 80$
12. 15 inches
13. 5 lbs.
14. 7 lbs.
15. 2 tons
16. 2 cups
17. 4 pints
18. 16 jars
19. yes
20. Tom, (3.12 miles = 5 km)

### Pages 37–39

1. 4 pieces
2. 2  $\frac{1}{2}$  quarts; no
3. \$ 2.00
4. a. \$ .40  
b. \$ .50
5. \$609.44
6. \$417.30
7. \$90.62
8. \$19.33
9. \$56.55
10. \$1.26
11. \$0.04
12. 16
13. no; less ( $\frac{1}{5}$ )
14. Paul: \$6.00, Todd: \$7.25, Eli \$5.00; total: \$18.25
15. \$16.00; \$32.00
16. 12, 15, 3
17. \$31,250
18. 35.95 inches
19. 6 tries
20. 489 divided by 6 equals 81 with a remainder of 3. He can sell 81 bunches, which would leave him 3 to sell at the regular price.
21. \$6 per hour
22. 35 lbs. per box
23. 38 hours; \$266
24. b; \$58
25. d. 360 lbs.
26. 10 P.M. is 9 hours later. If the clock loses 3 minutes every hour, it will be 27 minutes behind or 9:33 P.M. when it is supposed to read 10 P.M.
27. Number of houses =  $\$4,608 / \$256 \text{ per house} = 18 \text{ houses}$
28.  $\$0.23$  is spent on the peel.  
 $\$1.80 - \$0.23 = \$1.57$  on banana
29. James spent \$37.42; he saved \$12.48
30. Laurel paid \$13.50 for the gift. Joey paid \$9.00 for the gift.

### Pages 40 and 41

1. \$24
2. play
3. movie
4. concert
5. \$2
6. \$60
7. fifth graders
8. Mon. – Fri., 8 – 11 P.M.
9. Sat., 7 A.M. – 1 P.M.
10. 500 glasses
11. 350 glasses
12. 50 glasses
13. 1,100 glasses
14. 19%
15. 62%
16. 81%
17. deer and squirrels
18. more

### Pages 42–44

- Frog Race*  
Frog 1 = 65 seconds  
Frog 2 = 68 seconds  
Frog 1 wins the race.
- Bad Dogs!*  
2 hours (1:00 A.M.)
- Free Dinner*  
5 dinners
- Race to Rescue*  
Joshua will reach his father first.  
At the rate of 22 miles per hour, Benjamin's raft covers the distance of 40 miles in  $40 \div 22 = 1.8$  hours. Adding the time for three delays,  $3 \times 0.4 = 1.2$  hours, his total time is 3 hours.  
Thirty percent of Joshua's 32-mile trail (or  $32 \times 0.3 = 9.6$  miles) is steep, and at a rate of 8 miles per hour, he covers this steep section in  $9.6 \div 8 = 1.2$  hours. At a rate of 15 miles per hour on the 22.4 mile flat section, Joshua covers this in  $22.4 \div 15 = 1.5$  hours. His total time is 2.7 hours.  
At her average rate of 5 miles per hour, Hannah covers her 14 mile mountain trail in  $14 \div 5 = 2.8$  hours, but her rest time at the summit takes  $10 \div 60$  or nearly 0.2 hours, so her total time, like Benjamin's, is 3 hours.  
Their father rides Joshua's horse back to the village and treats the child.

### Clever Math Teachers

- Mr. Ric Tangle is in school, while Mr. Perry Meter, Mr. Sol Ution, Ms. Dee Nominator, and Mr. Cal Culator are not.  
Mr. Perry Meter is not at school. There are four 12's on one side of the equation and 5 on the other.  
Mr. Ric Tangle is at school.  
The commutative property of numbers tells us that it doesn't matter what order the numbers are in when you multiply.  
Ms. Py R. Square is at school.  $50 \times 30$  would be 1,500, so  $50 \times 32$  must be  $> 1,000$ .  
Mr. Sol Ution is not at school.  $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$ , not  $\frac{1}{8}$ .  
Ms. Dee Nominator is not at school. The two numbers on the left of the equal sign are not quite the same as the two numbers on the right.  
Mr. Cal Culator is at not at school. If  $33 + z = 107$ ,  $z =$

$107 - 33$ , which is 74, not 64.

*At the Corner Store*  
The prices are: \$1.20, \$1.25, \$1.50, and \$3.16

*Bare Feet*  
 $12 - 7 = 5$  people in bare feet!

*Two Trains Running*  
At time  $t$ , the distance the passenger train is from the terminal is  $d = 50t$ . At this same time, the distance the freight train is from the terminal is  $d = 30(t + 1)$ . The  $t + 1$  is because at any given time  $t$ , the freight train has been traveling an hour longer than the second train. They pass each other when their two distances are the same, or  $30(t + 1) = 50t$ . Solve for  $t$  to get  $\frac{3}{2}$  or 1.5 hours. The trains will pass each other after 1.5 hours.

### Sheep or Kids?

There are two possible answers: 1 person and 2 sheep or 3 people and 1 sheep.

### The Airplane and the Square Side Time (min)

1. 60
2. 30
3. 20
4. 15

Total = 2 hrs. 5 min. =  $25/12$  hrs  
Average speed =  $400 \text{ miles} \div (25/12) \text{ hrs} = 192 \text{ mph}$