<u>Pre-requisite Skills for 7th Grade Math</u>

Directions: Use this packet as a guide to be sure you know how to do each type of problem. **Every problem does not have to be completed.** Answer pages are given after each section so that you can check your work. Turn this packet in **along with your scratch work** on the first day of seventh grade. Note that there are 6th Grade IXL categories for each concept, and you are welcome to do these for extra practice. In addition to the packet, it is recommended that you spend approximately 10 hours on Khan Academy. You can do the 6th Grade Course Challenge or some skills in the Get Ready for 7th Grade course. Keep a log where you record the time spent either watching videos or doing practice problems. I will see your progress through my account.

Fractions (IXL categories I, J, K, L)
- Write equivalent fractions and put fractions in simplest form
- Convert fluently between improper fractions and mixed numbers
- Add and subtract fractions and mixed numbers
- Multiply and divide fractions and mixed numbers

Decimals (IXL categories F, G, H)
- Add and subtract 2- and 3- digit decimals
- Multiply and divide 2- and 3- digit decimals (including long division

Factors and Multiples (IXL category E)
- Know divisibility rules for 2, 3, 4, 5, 6, 9, and 10
- Find the prime factorization of a number
- Know what a factor of a number is and can list the factors of a number
- Find the GCF of 2 numbers
- Know what a multiple is and can list several multiples of a number
- Find the LCM of 2 numbers

Ratios and Rates (IXL category R)
- Find equivalent ratios (equivalent fractions)
- Find unit rates

Percents (IXL category S)
- Convert fluently between fractions, decimals, and percents
- Find the percent of a number

The Coordinate Plane (IXL category X)
- Graph points in four quadrants

Name _____ Class _____ Date _____

Reteaching 4-5

Equivalent Fractions

Equivalent fractions are fractions that name the same amount.

To find equivalent fractions, multiply or divide the numerator and denominator by the same number.

$$\overset{\times 2}{\frac{2}{5} = \frac{4}{10}} \qquad \overset{\div 2}{\frac{4}{10} = \frac{2}{5}}$$

So, $\frac{2}{5} = \frac{4}{10}$.

To write a fraction in *simplest form*, divide the numerator and denominator by their greatest common factor.

Example: Write $\frac{8}{12}$ in simplest form.

① Find the greatest common factor.

8: 1, 2, **4**, 8
12: 1, 2, 3, **4**, 6, 12

The GCF is 4.

② Divide the numerator and denominator by the GCF.

$$\overset{\div 4}{\frac{8}{12} = \frac{2}{3}}$$

$\frac{8}{12}$ in simplest form is $\frac{2}{3}$.

Write two fractions equivalent to each fraction.

1. $\frac{5}{6}$ _____

2. $\frac{3}{7}$ _____

3. $\frac{7}{8}$ _____

4. $\frac{3}{11}$ _____

5. $\frac{3}{6}$ _____

6. $\frac{1}{5}$ _____

State whether each fraction is in simplest form. If it is not, write it in simplest form.

7. $\frac{12}{15}$ _____

8. $\frac{8}{15}$ _____

9. $\frac{15}{22}$ _____

10. $\frac{14}{30}$ _____

Write each fraction in simplest form.

11. $\frac{12}{24}$ _____

12. $\frac{10}{200}$ _____

13. $\frac{56}{64}$ _____

14. $\frac{3}{9}$ _____

15. $\frac{130}{170}$ _____

16. $\frac{12}{16}$ _____

17. $\frac{7}{49}$ _____

18. $\frac{22}{33}$ _____

19. $\frac{30}{225}$ _____

20. There are 420 girls out of 1,980 people attending a state fair. In simplest form, what fraction of the people attending are girls?

_____

Practice 4-5

Equivalent Fractions

Name the fractions modeled and determine if they are equivalent.

1.

2.

3.

_____   _____   _____

By what number can you multiply the numerator and denominator of the first fraction to get the second fraction?

4. $\frac{2}{3}, \frac{4}{6}$

5. $\frac{3}{8}, \frac{15}{40}$

6. $\frac{7}{10}, \frac{42}{60}$

7. $\frac{3}{4}, \frac{9}{12}$

_____   _____   _____   _____

By what number can you divide the numerator and denominator of the first fraction to get the second fraction?

8. $\frac{6}{8}, \frac{3}{4}$

9. $\frac{70}{80}, \frac{7}{8}$

10. $\frac{15}{60}, \frac{1}{4}$

11. $\frac{75}{100}, \frac{3}{4}$

_____   _____   _____   _____

Write two equivalent fractions for each fraction.

12. $\frac{3}{10}$ _____

13. $\frac{7}{8}$ _____

14. $\frac{5}{6}$ _____

15. $\frac{3}{4}$ _____

16. $\frac{15}{20}$ _____

17. $\frac{8}{12}$ _____

18. $\frac{15}{45}$ _____

19. $\frac{8}{32}$ _____

State whether each fraction is in simplest form. If it is not, write it in simplest form.

20. $\frac{15}{35}$ _____

21. $\frac{22}{55}$ _____

22. $\frac{25}{32}$ _____

23. $\frac{34}{36}$ _____

24. $\frac{19}{57}$ _____

25. $\frac{125}{200}$ _____

26. $\frac{27}{54}$ _____

27. $\frac{30}{41}$ _____

28. $\frac{85}{110}$ _____

29. A library has 10 camping guide books, 4 fishing guide books, and 6 hiking guide books. In simplest form, what fraction of the guide books are camping or hiking guide books?

_____

30. An orchard has 48 apple trees, 30 peach trees, and 42 pear trees. In simplest form, what fraction of the trees are peach trees?

_____

Practice 4-6

Mixed Numbers and Improper Fractions

What mixed number represents the amount shaded?

1. _____

2. _____

3. _____

4. _____

Write each mixed number as an improper fraction.

5. $1\frac{7}{8}$ _____

6. $2\frac{3}{4}$ _____

7. $7\frac{1}{3}$ _____

8. $3\frac{3}{4}$ _____

9. $4\frac{1}{4}$ _____

10. $5\frac{5}{6}$ _____

11. $2\frac{3}{8}$ _____

12. $4\frac{7}{8}$ _____

13. $2\frac{3}{5}$ _____

14. $3\frac{11}{12}$ _____

15. $2\frac{7}{12}$ _____

16. $5\frac{4}{15}$ _____

Write each improper fraction as a mixed number in simplest form.

17. $\frac{15}{2}$ _____

18. $\frac{8}{3}$ _____

19. $\frac{5}{2}$ _____

20. $\frac{11}{10}$ _____

21. $\frac{7}{6}$ _____

22. $\frac{9}{8}$ _____

23. $\frac{27}{12}$ _____

24. $\frac{26}{18}$ _____

25. $\frac{35}{21}$ _____

26. $\frac{17}{5}$ _____

27. $\frac{17}{6}$ _____

28. $\frac{36}{15}$ _____

29. Find the improper fraction with a denominator of 6 that is equivalent to $5\frac{1}{2}$.

_____

30. Find the improper fraction with a denominator of 12 that is equivalent to $10\frac{1}{4}$.

_____

Chapters 1–4 Answers (continued)

team students and 5 rows of 5 color guard students

Practice (adapted) 4-4

1. 4 **2.** 9 **3.** 1 **4.** 12 **6.** 6 **7.** 5 **8.** 25 **9.** 7 **10.** 8 **11.** 5 **12.** 1 **13.** 4 **14.** 9 **15.** 5 **16.** 3 **17.** 24 **18.** 7 **19.** 1,700 and 2,550 **20.** 958 and 1,437

Activity Lab 4-4

1. 12 centerpieces; 3 carnations, 2 roses, 4 tulips
2. 6 centerpieces; 6 carnations; 4 roses, 8 tulips, 5 daisies
3. 2 centerpieces; 18 carnations, 12 roses, 20 tulips, 15 daisies
4. 9 bouquets; 3 red, 4 blue, 6 green **5.** 9 bouquets; 3 red, 4 blue, 6 green, 12 yellow **6.** 9 bouquets; 3 red, 4 blue, 6 green, 10 yellow

Reteaching 4-4

1. 1, 2, 5, 10; 1, 3, 5, 15; 5 **2.** 1, 2, 7, 14; 1, 3, 7, 21; 7 **3.** 1, 3, 9; 1, 3, 7, 21; 3 **4.** 1, 2, 3, 4, 6, 12; 1, 13; 1 **5.** 1, 3, 5, 15; 1, 5, 25; 5 **6.** 1, 3, 5, 15; 1, 2, 3, 6, 9, 18; 3 **7.** 1, 2, 3, 4, 6, 9, 12, 18, 36; 1, 2, 3, 4, 6, 8, 12, 16, 24, 48; 12 **8.** 1, 2, 3, 4, 6, 8, 12, 24; 1, 2, 3, 5, 6, 10, 15, 30; 6 **9.** 3 **10.** 15 **11.** 6 **12.** 10 **13.** 4 **14.** 24

Enrichment 4-4

1. 12 and 18 **2.** 24 and 56 **3.** 8, 16, and 24 **4.** 9 and 54, 18 and 45, 27 and 36 **5.** 5, 15, and 25; 5, 10 and 30; 10, 15, and 20 **6.** Check students' answers.

Puzzle 4-4

1. 3 **2.** 12 **3.** 30 **4.** 4 **5.** 14 **6.** 15 **7.** 21 **8.** 9

Practice (regular) 4-5

1. $\frac{1}{3}, \frac{4}{12}$; yes **2.** $\frac{1}{2}, \frac{3}{5}$; no **3.** $\frac{3}{4}, \frac{6}{10}$; no **4.** 2 **5.** 5 **6.** 6 **7.** 3 **8.** 2 **9.** 10 **10.** 15 **11.** 25 **12–19.** Sample answers are given.
12. $\frac{6}{20}, \frac{9}{30}$ **13.** $\frac{14}{16}, \frac{21}{24}$ **14.** $\frac{10}{12}, \frac{15}{18}$ **15.** $\frac{9}{12}, \frac{15}{20}$ **16.** $\frac{3}{4}, \frac{6}{8}$ **17.** $\frac{2}{3}, \frac{4}{6}$ **18.** $\frac{1}{3}, \frac{3}{9}$ **19.** $\frac{1}{4}, \frac{3}{12}$ **20.** no; $\frac{3}{7}$ **21.** no; $\frac{2}{5}$ **22.** yes **23.** no; $\frac{17}{18}$ **24.** no; $\frac{1}{3}$ **25.** no; $\frac{5}{8}$ **26.** no; $\frac{1}{2}$ **27.** yes **28.** no; $\frac{17}{22}$ **29.** $\frac{4}{5}$ **30.** $\frac{1}{4}$

Guided Problem Solving 4-5

1. Explain why the engineers wrote the driving time differently.
2. They are the same. **3.** Sample answers: seconds, minutes, hours, days, weeks, months, years **4.** minutes **5.** hours **6.** One engineer wrote the time in minutes and the other wrote it in hours. **7.** Sample answer: Minutes and hours are reasonable units when talking about driving time between two towns. **8.** 15 minutes

Practice (adapted) 4-5

1. $\frac{1}{3}, \frac{4}{12}$; yes **2.** $\frac{1}{2}, \frac{3}{5}$; no **3.** $\frac{3}{4}, \frac{6}{10}$; no **4.** 2 **5.** 5 **6.** 6 **7.** 2 **8.** 10

9. 15 **10–15.** Sample answers are given. **10.** $\frac{6}{20}, \frac{9}{30}$ **11.** $\frac{14}{16}, \frac{21}{24}$ **12.** $\frac{10}{12}, \frac{15}{18}$ **13.** $\frac{3}{4}, \frac{6}{8}$ **14.** $\frac{2}{3}, \frac{4}{6}$ **15.** $\frac{1}{3}, \frac{3}{9}$ **16.** no; $\frac{3}{7}$ **17.** no; $\frac{2}{5}$ **18.** no; $\frac{17}{18}$ **19.** no; $\frac{1}{3}$ **20.** no; $\frac{1}{2}$ **21.** yes **22.** $\frac{4}{5}$

Activity Lab 4-5

1. Check students' work. **2.** $\frac{1}{4}$ **3.** $\frac{1}{4}$ unit **4a.** $\frac{1}{2}$ **4b.** $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$
5. $C = \frac{1}{16}$ unit; Area of piece $D = \frac{1}{32}$ unit **6a.** $E = 2C$
6b. $E = \frac{1}{8}$ unit **7a.** $\frac{5}{32}$ unit **7b.** $F = D + 2C = \frac{5}{32}$ unit
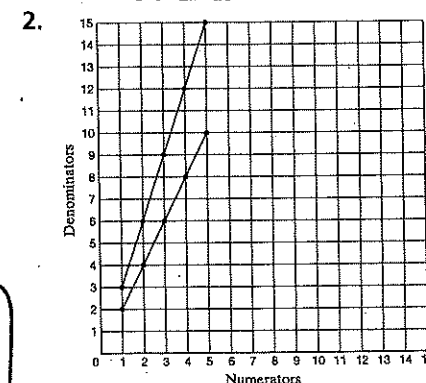**8.** Check that the sum of the areas of the pieces is 1.

Reteaching 4-5

1–6. Sample answers are given. **1.** $\frac{10}{12}; \frac{15}{18}$ **2.** $\frac{6}{14}; \frac{9}{21}$ **3.** $\frac{14}{16}; \frac{28}{32}$ **4.** $\frac{6}{22}; \frac{9}{33}$ **5.** $\frac{6}{12}; \frac{1}{2}$ **6.** $\frac{2}{10}; \frac{5}{25}$ **7.** no; $\frac{4}{5}$ **8.** yes **9.** yes **10.** no; $\frac{7}{15}$ **11.** $\frac{1}{2}$ **12.** $\frac{1}{20}$ **13.** $\frac{7}{8}$ **14.** $\frac{1}{3}$ **15.** $\frac{13}{17}$ **16.** $\frac{3}{4}$ **17.** $\frac{1}{7}$ **18.** $\frac{2}{3}$ **19.** $\frac{2}{15}$ **20.** $\frac{7}{33}$

Enrichment 4-5

1–5. Sample answers are given.
1. Sample: $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}$
2.

3. Points form a line segment, and each point is one space right and three spaces up from the prior point. **4.** Points will form a line segment, and each point is one space right and two spaces up from the prior point. **5.** Sample answer: $\frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$. Check students' answers. **6.** The line segment for $\frac{1}{3}$ is steeper than the line segment for $\frac{1}{2}$. The larger the denominator, the steeper the line segment will be.

Puzzle 4-5

1. I **2.** J **3.** R **4.** U **5.** T **6.** P **7.** E
JUPITER

Practice (regular) 4-6

1. $2\frac{3}{4}$ **2.** $3\frac{5}{6}$ **3.** $4\frac{5}{8}$ **4.** $6\frac{2}{5}$ **5.** $\frac{15}{8}$ **6.** $\frac{11}{4}$ **7.** $\frac{22}{3}$ **8.** $\frac{15}{4}$ **9.** $\frac{17}{4}$ **10.** $\frac{35}{6}$ **11.** $\frac{19}{8}$ **12.** $\frac{39}{8}$ **13.** $\frac{13}{5}$ **14.** $\frac{47}{12}$ **15.** $\frac{31}{12}$ **16.** $\frac{79}{15}$ **17.** $7\frac{1}{2}$ **18.** $2\frac{2}{3}$

Chapters 1–4 Answers (continued)

19. $2\frac{1}{2}$ **20.** $1\frac{1}{10}$ **21.** $1\frac{1}{6}$ **22.** $1\frac{1}{8}$ **23.** $2\frac{1}{4}$ **24.** $1\frac{4}{9}$ **25.** $1\frac{2}{3}$ **26.** $3\frac{2}{5}$
27. $2\frac{5}{6}$ **28.** $2\frac{2}{5}$ **29.** $\frac{33}{6}$ **30.** $\frac{123}{12}$

Guided Problem Solving 4-6

1. two slices; 50 guests; 12 slices **2.** Write the number of melons as a mixed number; then find out how many whole melons are needed. **3.** 100 slices **4.** 12 slices **5.** division **6.** $8\frac{1}{3}$ melons
7. 9 melons **8.** Parts of melons are not usually sold in bulk.
9. $6\frac{11}{16}$; 7 buses

Practice (adapted) 4-6

1. $2\frac{3}{4}$ **2.** $3\frac{5}{6}$ **3.** $4\frac{5}{8}$ **4.** $\frac{15}{8}$ **5.** $\frac{11}{4}$ **6.** $\frac{22}{3}$ **7.** $\frac{15}{4}$ **8.** $\frac{17}{4}$ **9.** $\frac{35}{6}$ **10.** $\frac{19}{8}$
11. $\frac{39}{8}$ **12.** $\frac{13}{5}$ **13.** $7\frac{1}{2}$ **14.** $2\frac{2}{3}$ **15.** $2\frac{1}{2}$ **16.** $1\frac{1}{10}$ **17.** $1\frac{1}{6}$ **18.** $1\frac{1}{8}$
19. $2\frac{1}{4}$ **20.** $1\frac{4}{9}$ **21.** $1\frac{2}{3}$ **22.** $\frac{33}{6}$

Activity Lab 4-6

1. $\frac{27}{4}$ **2.** $5\frac{3}{7}$ **3.** $\frac{58}{7}$ **4.** $3\frac{9}{11}$ **5.** $\frac{227}{16}$ **6.** $1\frac{13}{43}$ **7.** $\frac{262}{11}$ **8.** $1\frac{29}{31}$
9. $\frac{1,247}{34}$ **10.** $10\frac{3}{8}$ **11.** $\frac{2,325}{44}$ **12.** $18\frac{4}{5}$ **13.** $\frac{3,187}{67}$ **14.** $2\frac{55}{64}$
15. $\frac{10,896}{47}$ **16.** $462\frac{4}{5}$

Reteaching 4-6

1. $\frac{16}{7}$ **2.** $\frac{23}{4}$ **3.** $\frac{53}{8}$ **4.** $\frac{34}{10}$ **5.** $\frac{28}{3}$ **6.** $\frac{24}{5}$ **7.** $\frac{27}{8}$ **8.** $\frac{17}{7}$ **9.** $\frac{49}{6}$
10–15. Check students' work. **16.** $1\frac{1}{8}$ **17.** $3\frac{1}{2}$ **18.** $2\frac{2}{3}$
19. $1\frac{3}{4}$ **20.** $6\frac{2}{3}$ **21.** $3\frac{2}{5}$ **22.** $1\frac{4}{5}$ **23.** $3\frac{5}{8}$ **24.** $2\frac{2}{3}$

Enrichment 4-6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Titus														X	
Ferns						X								X	
Violets					X							X			
Herman			X					X				X			
Whiskers		X			X			X				X			X

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Titus													X		
Ferns						X							X		
Violets			X						X						X
Herman	X				X				X			X			
Whiskers			X			X			X			X			X

1. 14th and 28th **2.** once **3.** no **4.** 28 days **5.** 12th and 24th

Puzzle 4-6

X	$\frac{11}{2}$	X	$\frac{68}{7}$	$\frac{21}{7}$	$\frac{222}{21}$
$\frac{2}{2}$	$\frac{5}{2}$	$\frac{1}{2}$	X	$\frac{78}{14}$	X
$\frac{2}{3}$	$\frac{2}{1}$	X	$\frac{370}{70}$	$\frac{14}{7}$	$\frac{74}{4}$
X	$\frac{25}{8}$	$\frac{11}{3}$	X	$\frac{22}{8}$	$\frac{11}{4}$
$\frac{50}{3}$	X	X	$\frac{63}{12}$	X	$\frac{100}{25}$
$\frac{12}{3}$	X	$\frac{31}{4}$	$\frac{50}{4}$	$\frac{10}{4}$	X
$\frac{10}{8}$	X	$\frac{18}{8}$	$\frac{20}{10}$	$\frac{10}{5}$	X
$\frac{45}{8}$	$\frac{102}{16}$	$\frac{21}{8}$	X	$\frac{68}{25}$	$\frac{51}{15}$
X	$\frac{59}{3}$	X	X	$\frac{16}{5}$	$\frac{32}{5}$

Practice (regular) 4-7

1. 10 **2.** 6 **3.** 24 **4.** 40 **5.** 30 **6.** 60 **7.** 45 **8.** 30 **9.** 18 **10.** 15
11. 20 **12.** 63 **13.** 24 **14.** 24 **15.** 36 **16.** 60 **17.** 120 **18.** 20
19. 126 **20.** 105 **21.** 72 **22.** 30 **23.** 120 **24.** 72 **25.** 168
26. 336 **27.** 56 **28.** 120 **29.** 240 **30.** 90 **31.** 48 **32.** 80
33. 240 **34.** 3 packages of hot dogs, 2 packages of buns

Guided Problem Solving 4-7

1. fifteenth, fortieth **2.** Find which customer will be the first to get both a free CD and a free DVD. **3.** the 15th, 30th, 45th, 60th, 75th, 90th, 105th, 120th, 135th, 150th, etc. **4.** the 40th, 80th, 120th, 160th, 200th, etc. **5.** the 120th customer
6. The answer should be the LCM of 15 and 40. **7.** 30 days

Practice (adapted) 4-7

1. 10 **2.** 6 **3.** 24 **4.** 40 **5.** 30 **6.** 60 **7.** 45 **8.** 30 **9.** 18 **10.** 15
11. 20 **12.** 63 **13.** 126 **14.** 105 **15.** 72 **16.** 30 **17.** 120 **18.** 72
19. 168 **20.** 336 **21.** 56 **22.** 3 packages of hot dogs, 2 packages of buns

Activity Lab 4-7

1–2.

Numbers	LCM	GCF	Product of original numbers	Product of LCM and GCF
12, 15				
8, 24				
7, 12				
27, 36				

3. The values are equivalent; is equal to **4a.** 486 **4b.** 9 **4c.** 54
5. 120 **6.** 72 **7.** 100 **8.** 84

Name _____ Class _____ Date _____

Reteaching 5-2

Fractions With Like Denominators

Add: $\frac{1}{6} + \frac{3}{6}$

① Combine numerators over the denominator.

② Add numerators.

③ Simplify, if possible.

$\frac{1}{6} + \frac{3}{6} = \frac{2}{3}$

$\frac{1}{6} + \frac{3}{6} = \frac{1+3}{6}$
$= \frac{4}{6}$
$= \frac{2}{3}$

Subtract: $\frac{7}{10} - \frac{2}{10}$

① Combine numerators over the denominator.

② Subtract numerators.

③ Simplify, if possible.

$\frac{7}{10} - \frac{2}{10} = \frac{1}{2}$

$\frac{7}{10} - \frac{2}{10} = \frac{7-2}{10}$
$= \frac{5}{10}$
$= \frac{1}{2}$

Find each sum.

1. $\frac{1}{5} + \frac{3}{5}$ _____

2. $\frac{4}{6} + \frac{1}{6}$ _____

3. $\frac{3}{12} + \frac{3}{12}$ _____

4. $\frac{6}{10} + \frac{5}{10}$ _____

5. $\frac{3}{10} + \frac{2}{10}$ _____

6. $\frac{6}{12} + \frac{3}{12}$ _____

7. $\frac{5}{8} + \frac{1}{8}$ _____

8. $\frac{3}{8} + \frac{9}{8}$ _____

9. $\frac{3}{8} + \frac{6}{8}$ _____

Find each difference.

10. $\frac{6}{8} - \frac{3}{8}$ _____

11. $\frac{9}{10} - \frac{3}{10}$ _____

12. $\frac{3}{4} - \frac{1}{4}$ _____

13. $\frac{7}{12} - \frac{1}{12}$ _____

14. $\frac{8}{10} - \frac{6}{10}$ _____

15. $\frac{4}{6} - \frac{2}{6}$ _____

16. $\frac{5}{10} - \frac{1}{10}$ _____

17. $\frac{7}{12} - \frac{6}{12}$ _____

18. $\frac{9}{10} - \frac{4}{10}$ _____

Find each sum or difference.

19. $\frac{2}{7} + \frac{2}{7} - \frac{1}{7}$

20. $\frac{10}{100} + \frac{20}{100} + \frac{90}{100}$

21. $\frac{2}{5} - \frac{2}{5} + \frac{5}{5}$

22. $\frac{10}{11} - \left(\frac{2}{11} + \frac{4}{11}\right)$

23. $\frac{8}{10} - \frac{2}{10} - \frac{1}{10}$

24. $\frac{62}{80} - \frac{10}{80} - \frac{5}{80}$

25. For school photos, $\frac{1}{5}$ of the students choose to have a blue background, $\frac{2}{5}$ of the students choose to have a purple background, and $\frac{1}{5}$ of the students choose to have a gray background. What portion of the students choose to have another background color?

Reteaching

Course 1 Lesson 5-2

13

Reteaching 5-3

Fractions With Unlike Denominators

To add or subtract fractions with unlike denominators, you can use equivalent fractions.

Example 1: Find $\frac{5}{6} + \frac{1}{2}$.

(1) Find the least common denominator of 6 and 2.

The LCD is 6.

(2) Write equivalent fractions using the LCD.

$$\frac{5}{6} = \frac{5}{6} \qquad \frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$

(3) Add. Write the sum in simplest form.

$$\frac{5}{6} + \frac{1}{2} = \frac{5}{6} + \frac{3}{6}$$
$$= \frac{5 + 3}{6}$$
$$= \frac{8}{6}$$
$$= \frac{4}{3}$$
$$= 1\frac{1}{3}$$

$$\frac{5}{6} + \frac{1}{2} = 1\frac{1}{3}$$

Example 2: Find $\frac{4}{5} - \frac{1}{3}$.

(1) Find the least common denominator of 5 and 3.

The LCD is 15.

(2) Write equivalent fractions using the LCD.

$$\frac{4}{5} = \frac{4 \times 3}{5 \times 3} = \frac{12}{15} \qquad \frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

(3) Subtract. Write the difference in simplest form.

$$\frac{4}{5} - \frac{1}{3} = \frac{12}{15} - \frac{5}{15}$$
$$= \frac{12 - 5}{15}$$
$$= \frac{7}{15}$$

$$\frac{4}{5} - \frac{1}{3} = \frac{7}{15}$$

Find each sum or difference.

1. $\frac{1}{2} + \frac{3}{4}$ _____

2. $\frac{11}{16} - \frac{5}{16}$ _____

3. $\frac{1}{6} + \frac{1}{3}$ _____

4. $\frac{7}{8} - \frac{1}{2}$ _____

5. $\frac{9}{10} + \frac{1}{2}$ _____

6. $\frac{2}{3} + \frac{5}{9}$ _____

7. $\frac{1}{2} + \frac{7}{10}$ _____

8. $\frac{3}{4} - \frac{5}{12}$ _____

9. $\frac{5}{8} + \frac{1}{4}$ _____

10. $\frac{15}{16} - \frac{1}{4}$ _____

11. $\frac{7}{12} - \frac{1}{3}$ _____

12. $\frac{5}{6} + \frac{1}{3}$ _____

13. $\frac{7}{8} - \frac{1}{4}$ _____

14. $\frac{3}{5} + \frac{1}{6}$ _____

15. $\frac{1}{12} + \frac{1}{10}$ _____

16. $\frac{7}{8} - \frac{3}{10}$ _____

17. $\frac{2}{6} + \frac{3}{4}$ _____

18. $\frac{3}{8} - \frac{1}{3}$ _____

19. $\frac{5}{8} + \frac{2}{3}$ _____

20. $\frac{3}{5} - \frac{1}{2}$ _____

21. $\frac{1}{8} + \frac{1}{5}$ _____

Practice 5-3

Fractions With Unlike Denominators

Write each sum or difference in simplest form.

1. $\frac{1}{4} + \frac{2}{3}$

_____

2. $\frac{2}{5} - \frac{1}{10}$

_____

3. $\frac{1}{6} + \frac{1}{4}$

_____

4. $\frac{5}{8} - \frac{1}{4}$

_____

5. $\frac{7}{8} - \frac{1}{2}$

_____

6. $\frac{3}{10} + \frac{4}{5}$

_____

7. $\frac{5}{6} - \frac{2}{5}$

_____

8. $\frac{5}{12} - \frac{1}{4}$

_____

9. $\frac{7}{16} + \frac{1}{8}$

_____

10. $\frac{11}{16} + \frac{5}{8}$

_____

11. $\frac{2}{7} + \frac{1}{2}$

_____

12. $\frac{4}{5} + \frac{3}{4}$

_____

13. Jeanie has a $\frac{3}{4}$-yard piece of ribbon. She needs one $\frac{3}{8}$-yard piece and one $\frac{1}{2}$-yard piece. Can she cut the piece of ribbon into the two smaller pieces? Explain.

_____

Simplify by using mental math.

14. $\frac{7}{10} + \frac{2}{5} - \frac{1}{10}$ _____

15. $\frac{5}{100} + \frac{20}{100} + \frac{30}{100}$ _____

16. $\frac{2}{8} - \frac{2}{4} + \frac{5}{8}$ _____

17. $\frac{10}{12} - \left(\frac{1}{12} + \frac{4}{6}\right)$ _____

18. $\frac{6}{10} - \frac{2}{10} + \frac{1}{2}$ _____

19. $\frac{8}{16} - \frac{1}{4} + \frac{8}{16}$ _____

20. For the class photo, $\frac{1}{5}$ of the students wore jeans, $\frac{2}{10}$ of the students wore shorts, and $\frac{4}{10}$ of the students wore a skirt. What fraction of the students wore something else?

_____

Name _____ Class _____ Date _____

Practice 5-4 .... **Adding Mixed Numbers**

Complete to rename each mixed number.

1. $3\frac{9}{8} = 4\frac{?}{8}$ _____

2. $5\frac{7}{4} = 6\frac{?}{4}$ _____

3. $2\frac{17}{12} = 3\frac{?}{12}$ _____

Write each sum in simplest form.

4. $4\frac{3}{10} + 5\frac{2}{5}$

5. $3\frac{7}{8} + 2\frac{1}{2}$

6. $5\frac{2}{3} + 3\frac{1}{4}$

_____

7. $6\frac{3}{4} + 2\frac{1}{2}$

8. $1\frac{1}{12} + 3\frac{1}{6}$

9. $9\frac{2}{5} + 10\frac{3}{10}$

_____

10. $7\frac{1}{3} + 5\frac{11}{12}$

11. $11\frac{7}{10} + 4$

12. $2\frac{2}{3} + 4\frac{3}{4}$

_____

13. $7\frac{3}{4} + 2\frac{7}{8}$

14. $4\frac{1}{2} + 3\frac{5}{6}$

15. $7\frac{2}{3} + 1\frac{5}{6}$

_____

16. $2\frac{1}{4} + 4\frac{3}{5}$

17. $5\frac{3}{8} + 7\frac{1}{4}$

18. $14\frac{5}{16} + 8\frac{3}{8}$

_____

19. $\frac{11}{12} + 4\frac{5}{12}$

20. $27\frac{2}{5} + 3\frac{4}{5}$

21. $7\frac{1}{6} + 9\frac{7}{12}$

_____

22. Estimate the length of rope needed to go around a triangle with sides $6\frac{1}{2}$ feet, $7\frac{3}{4}$ feet, and $10\frac{1}{4}$ feet.

23. Sam grew three pumpkins for the pumpkin growing contest. The pumpkins weighed $24\frac{1}{8}$ pounds, $18\frac{2}{4}$ pounds, and $32\frac{5}{16}$ pounds. Find the combined total weight of Sam's pumpkins.

_____

Compare using <, =, or >. Use benchmarks to help.

24. $50\frac{7}{10} + 49\frac{1}{5}$ ☐ 101

25. $5\frac{3}{4} + 5\frac{1}{8}$ ☐ $11\frac{1}{2}$

26. $20\frac{1}{5} + 4\frac{9}{10}$ ☐ 25

27. $22\frac{1}{9} + 8\frac{3}{4}$ ☐ $31\frac{11}{12}$

28. $16\frac{6}{12} + 18\frac{4}{9}$ ☐ 34.5

29. $1\frac{1}{3} + 2\frac{1}{8}$ ☐ 3.5

Reteaching 5-5

Subtracting Mixed Numbers

Some mixed numbers can be subtracted mentally.

Example 1: Find $5\frac{2}{3} - 2\frac{1}{6}$.

(1) Subtract the whole numbers.

$$5 - 2 = 3$$

(2) Then, subtract the fractions.

$$\frac{2}{3} - \frac{1}{6} = \frac{4}{6} - \frac{1}{6} = \frac{3}{6} = \frac{1}{2}$$

(3) Combine the two parts.

$$3 + \frac{1}{2} = 3\frac{1}{2}$$

$$5\frac{2}{3} - 2\frac{1}{6} = 3\frac{1}{2}$$

Sometimes you must *rename* the first fraction before subtracting.

Example 2: Find $6\frac{1}{2} - 2\frac{3}{4}$.

(1) Write with a common denominator.

$$6\frac{1}{2} - 2\frac{3}{4} = 6\frac{2}{4} - 2\frac{3}{4}$$

(2) Rename $6\frac{2}{4}$. $= 5\frac{6}{4} - 2\frac{3}{4}$

(3) Subtract the whole numbers. $= 3\frac{3}{4}$
Then, subtract the fractions.
Simplify, if necessary.

$$6\frac{1}{2} - 2\frac{3}{4} = 3\frac{3}{4}$$

Find each difference.

1. $7\frac{7}{10} - 2\frac{3}{10}$

2. $3\frac{3}{4} - 1\frac{1}{2}$

3. $6\frac{2}{3} - 2\frac{1}{6}$

4. $9\frac{7}{8} - 7\frac{3}{4}$

5. $8\frac{1}{2} - 3\frac{1}{4}$

6. $14\frac{1}{3} - 8\frac{1}{4}$

7. $12\frac{1}{3} - 9\frac{2}{3}$

8. $6\frac{5}{8} - 2\frac{3}{4}$

9. $7\frac{5}{7} - 4\frac{13}{14}$

10. $10\frac{2}{3} - 7\frac{5}{6}$

11. $5\frac{7}{16} - 1\frac{1}{2}$

12. $8\frac{2}{5} - 3\frac{2}{3}$

13. $6\frac{1}{8} - 3\frac{1}{16}$

14. $9\frac{5}{12} - 5\frac{3}{4}$

15. $12\frac{3}{4} - 6\frac{1}{8}$

16. $7\frac{2}{5} - 2\frac{1}{4}$

17. $15\frac{5}{12} - 8\frac{1}{3}$

18. $4\frac{1}{10} - 2\frac{4}{5}$

Chapters 5–8 Answers

Chapter 5

Practice (regular) 5-1

1. $\frac{5}{8};\frac{1}{2}$ 2. $\frac{9}{10};1$ 3. 1 4. 2 5. $\frac{1}{2}$ 6. $1\frac{1}{2}$ 7. $\frac{1}{2}$ 8. 1 9. 2 10. 7
11. 10 12. 4 13. 5 14. 6 15. Sample answer: $\frac{3}{8},\frac{2}{5},\frac{1}{3}$
16. Sample answer: $1\frac{1}{8},\frac{9}{10},\frac{11}{12}$ 17. about $39 18. The bag for $2.99 is the better buy because the bag weighs about 4 lb, and the oranges cost about $0.75 per lb. It would cost about $3.60 to buy 4 lb at $0.89 per lb.

Guided Problem Solving 5-1

1. Estimate the total width of the coins. 2. to estimate the widths of the coins 3. $\frac{11}{16}$ in. 4. $\frac{1}{2}$ in. 5. $\frac{11}{16}$ in., $\frac{13}{16}$ in., $\frac{3}{4}$ in., and $\frac{15}{16}$ in. 6. 1 7. 1 8. 1 9. $3\frac{1}{2}$ in. 10. More, because most of the estimates were rounded up. 11. 13 in.

Practice (adapted) 5-1

1. $\frac{5}{8};\frac{1}{2}$ 2. $\frac{9}{10};1$ 3. 1 4. 2 5. $\frac{1}{2}$ 6. $1\frac{1}{2}$ 7. $\frac{1}{2}$ 8. 1 9. 2 10. 7
11. 10 12. Sample answer: $\frac{3}{8},\frac{2}{5},\frac{1}{3}$ 13. Sample answer: $1\frac{1}{8},\frac{9}{10},$
$\frac{11}{12}$ 14. The bag for $2.99 is the better buy because the bag weighs about 4 lb, and the oranges cost about $0.75 per lb. It would cost about $3.60 to buy 4 lb at $0.89 per lb.

Activity Lab 5-1

Check students' work.

Reteaching 5-1

1. 1 2. 2 3. 1 4. 0 5. 1 6. $\frac{1}{2}$ 7. $\frac{1}{2}$ 8. 2 9. 1 10. $\frac{1}{2}$ 11. 0
12. $\frac{1}{2}$ 13. $1\frac{1}{2}$ 14. 0 15. $\frac{1}{2}$ 16. 9 17. $\frac{1}{2}$ 18. 9 19. 7 20. 9
21. 6 22. yes 23. 6 mi

Enrichment 5-1

1. B Flat and Low F 2. about 2 tons 3. F and E 4. about $\frac{1}{2}$ ton 5. about $\frac{1}{2}$ ton 6. about 1 ton 7. about $\frac{1}{2}$ ton less
8. about 4 tons 9. Overestimate; the actual weight of all eight bells is a bit less than 4 tons.

Puzzle 5-1

1. $4\frac{1}{2}$ 2. 2 3. 7 4. 1 5. 8 6. $3\frac{1}{2}$ 7. 3 8. $1\frac{1}{2}$ 9. $2\frac{1}{2}$ 10. 9
11. $6\frac{1}{2}$ 12. 5 13. $9\frac{1}{2}$
DIXON, ILLINOIS

Practice (regular) 5-2

1. $\frac{3}{4}$ 2. $\frac{3}{10}$ 3. $\frac{1}{4}$ 4. $\frac{3}{4}$ 5. $\frac{7}{8}$ 6. $\frac{9}{10}$ 7. $\frac{1}{2}$ 8. $\frac{1}{2}$ 9. $\frac{2}{3}$ 10. $\frac{1}{2}$ c 11. $\frac{1}{2}$ c
12. $\frac{1}{8} \approx 0$ 13. $\frac{7}{10} \approx 1$ 14. 0 15. $\frac{11}{20} \approx \frac{1}{2}$ 16. $\frac{7}{9} \approx 1$ 17. $\frac{4}{5} \approx 1$
18. $\frac{1}{5}$ 19. $\frac{5}{9}$ yd

Guided Problem Solving 5-2

1. Determine how much more of your blood is plasma than blood cells. 2. subtraction 3. $\frac{11}{20}$ 4. $\frac{9}{20}$ 5. $\frac{11}{20}-\frac{9}{20}$ 6. $\frac{2}{20}$ or $\frac{1}{10}$ 7. Add $\frac{9}{20}$ to the answer and see whether the sum is $\frac{11}{20}$. 8. $1\frac{1}{4}$ inches

Practice (adapted) 5-2

1. $\frac{3}{4}$ 2. $\frac{3}{10}$ 3. $\frac{1}{4}$ 4. $\frac{3}{4}$ 5. $\frac{7}{8}$ 6. $\frac{9}{10}$ 7. $\frac{1}{2}$ cup 8. $\frac{1}{2}$ cup 9. $\frac{1}{8}$
10. $\frac{7}{10}$ 11. $\frac{11}{20}$ 12. $\frac{7}{9}$ 13. $\frac{1}{5}$ 14. $\frac{5}{9}$ yd

Activity Lab 5-2

1. $\frac{42}{48}$ 2. $\frac{21}{24};\frac{7}{8}$ 3a. 6 3b. yes 4. $\frac{43}{46}$ 5. $\frac{3}{13}$ 6. $\frac{42}{48}$ 7. $\frac{59}{72}$ 8. $\frac{5}{7}$ 9. $\frac{7}{8}$
10. $\frac{5}{6}$ 11. $\frac{2}{3}$

Reteaching 5-2

1. $\frac{4}{5}$ 2. $\frac{5}{6}$ 3. $\frac{1}{2}$ 4. $1\frac{1}{10}$ 5. $\frac{1}{2}$ 6. $\frac{3}{4}$ 7. $\frac{3}{4}$ 8. $1\frac{1}{2}$ 9. $1\frac{1}{8}$ 10. $\frac{3}{8}$ 11. $\frac{3}{5}$
12. $\frac{1}{2}$ 13. $\frac{1}{2}$ 14. $\frac{1}{5}$ 15. $\frac{1}{3}$ 16. $\frac{2}{5}$ 17. $\frac{1}{12}$ 18. $\frac{1}{2}$ 19. $\frac{3}{7}$ 20. $1\frac{1}{5}$
21. 1 22. $\frac{4}{11}$ 23. $\frac{1}{2}$ 24. $\frac{47}{80}$ 25. $\frac{1}{5}$

Enrichment 5-2

1. ground beef: W; ketchup: W; eggs: W; tomato juice: W; bran cereal: D; onion flakes: D; Worcestershire sauce: W; salt: D; pepper: D; mustard: W; ketchup: W; brown sugar: D
2. Dry: $\frac{1}{8}$ c, $\frac{1}{8}$ tsp, $\frac{1}{4}$ tsp; Wet: $\frac{1}{4}$ c, $\frac{1}{2}$ tsp 3. $\left(\frac{1}{4}+\frac{1}{4}\right)$ c ketchup; $\frac{1}{4}$ c juice; $\left(\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}\right)$ c cereal; $\left(\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}\right)$ tsp onion flakes; $\frac{1}{2}$ tsp Worcestershire sauce; $\left(\frac{1}{4}+\frac{1}{4}\right)$ tsp salt; $\frac{1}{8}$ tsp pepper; $\left(\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}\right)$ tsp mustard; $\left(\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}\right)$ tsp brown sugar; $\frac{1}{4}$ c ketchup
4. 1 lb beef; 1 c ketchup; 4 eggs; $\frac{1}{2}$ c juice; $1\frac{1}{2}$ c cereal; 3 tsp onion flakes; 1 tsp Worcestershire sauce; 1 tsp salt; $\frac{1}{4}$ tsp pepper; 4 tsp mustard; $\frac{1}{2}$ c ketchup; 4 tsp brown sugar

Puzzle 5-2

3; 11; 4; 10; 8; 16; 12; 2; 5; 9; 14; 6
ARCHIMEDES

Chapters 5–8 Answers (continued)

Practice (regular) 5-3

1. $\frac{11}{12}$ 2. $\frac{3}{10}$ 3. $\frac{5}{12}$ 4. $\frac{3}{8}$ 5. $\frac{3}{8}$ 6. $1\frac{1}{10}$ 7. $\frac{13}{30}$ 8. $\frac{1}{6}$ 9. $\frac{9}{16}$ 10. $1\frac{5}{16}$
11. $\frac{11}{14}$ 12. $1\frac{11}{20}$ 13. No, she needs $\frac{3}{8} + \frac{1}{2} = \frac{7}{8}$ yard. She only has $\frac{3}{4}$ yard, or $\frac{6}{8}$ yard; $\frac{7}{8} > \frac{6}{8}$. 14. 1 15. $\frac{11}{20}$ 16. $\frac{3}{8}$ 17. $\frac{1}{12}$ 18. $\frac{9}{10}$
19. $\frac{3}{4}$ 20. $\frac{1}{5}$

Guided Problem Solving 5-3

1. In part (a), you estimate the total rainfall; in part (b), you find the actual sum. 2. 0; 1 3. 1 inch 4. a common denominator
5. 40 6. $\frac{12}{40}, \frac{35}{40}$ 7. $\frac{47}{40}$ or $1\frac{7}{40}$ inches 8. Yes, because $1\frac{7}{40}$ is close to 1. 9. Sample answer: 2 cups; $2\frac{1}{8}$ cups

Practice (adapted) 5-3

1. $\frac{11}{12}$ 2. $\frac{3}{10}$ 3. $\frac{5}{12}$ 4. $\frac{3}{8}$ 5. $\frac{3}{8}$ 6. $1\frac{1}{10}$ 7. $\frac{13}{30}$ 8. $\frac{1}{6}$ 9. $\frac{9}{16}$ 10. $1\frac{5}{16}$
11. No; she needs $\frac{3}{8} + \frac{1}{2} = \frac{7}{8}$ yard, but she only has $\frac{3}{4}$ yard, or $\frac{6}{8}$ yard. 12. 1 13. $\frac{11}{20}$ 14. $\frac{3}{8}$ 15. $\frac{9}{10}$

Activity Lab 5-3

1. $\frac{159}{216}$ 2. $\frac{53}{72}$; no 3. $\frac{363}{280}$; improper 4. $\frac{392}{475}$ 5. $\frac{2}{5}$ 6. $1\frac{31}{48}$ 7. $2\frac{23}{120}$
8. $\frac{9}{32}$ 9. $2\frac{14}{75}$

Reteaching 5-3

1. $1\frac{1}{4}$ 2. $\frac{3}{8}$ 3. $\frac{1}{2}$ 4. $\frac{3}{8}$ 5. $1\frac{2}{5}$ 6. $1\frac{2}{9}$ 7. $1\frac{1}{5}$ 8. $\frac{1}{3}$ 9. $\frac{7}{8}$ 10. $\frac{11}{16}$
11. $\frac{1}{4}$ 12. $1\frac{1}{6}$ 13. $\frac{5}{8}$ 14. $\frac{23}{30}$ 15. $\frac{11}{60}$ 16. $\frac{23}{40}$ 17. $1\frac{1}{12}$ 18. $\frac{1}{24}$
19. $1\frac{7}{24}$ 20. $\frac{1}{10}$ 21. $\frac{13}{40}$

Enrichment 5-3

1. $\frac{22}{24} = \frac{11}{12}$ 2. $\frac{2}{24} = \frac{1}{12}$ 3. $\frac{89}{100}$ 4. $\frac{7}{60}$
5. $\frac{13}{15}$

10	3	
2	1	13
3	5	15

6. $\frac{22}{80} = \frac{11}{40}$

72	50	
9	5	22
10	8	80

7. $\frac{62}{63}$

35	27	
5	3	62
9	7	63

8. Sample answer: They use the same procedure to find the answer; the box procedure is easier to remember. 9. Sample answer: $\frac{38}{4}$ or $4\frac{1}{4}$; the method works if you write the mixed numbers as improper fractions.

Puzzle 5-3

1–8. Sample answers are given. 1. $\frac{3}{6} + \frac{4}{8}$ 2. $\frac{3}{4} + \frac{6}{8}$ 3. $\frac{3}{4} - \frac{6}{8}$ or $\frac{3}{6} - \frac{4}{8}$ 4. $\frac{4}{6} - \frac{3}{8}$ 5. $\frac{1}{3} + \frac{5}{7}$ 6. $\frac{1}{5} + \frac{3}{7}$ 7. $\frac{3}{5} - \frac{1}{7}$ 8. $\frac{5}{7} - \frac{1}{3}$

Practice (regular) 5-4

1. 1 2. 3 3. 5 4. $9\frac{7}{10}$ 5. $6\frac{3}{8}$ 6. $8\frac{11}{12}$ 7. $9\frac{1}{4}$ 8. $4\frac{1}{4}$ 9. $19\frac{7}{10}$
10. $13\frac{1}{4}$ 11. $15\frac{7}{10}$ 12. $7\frac{5}{12}$ 13. $10\frac{5}{8}$ 14. $8\frac{1}{3}$ 15. $9\frac{1}{2}$ 16. $6\frac{17}{20}$
17. $12\frac{5}{8}$ 18. $22\frac{11}{16}$ 19. $5\frac{1}{3}$ 20. $31\frac{1}{5}$ 21. $16\frac{3}{4}$ 22. about 25 ft
23. $74\frac{15}{16}$ lb 24. < 25. < 26. > 27. < 28. > 29. <

Guided Problem Solving 5-4

1. $4\frac{11}{12}$ feet; $2\frac{3}{4}$ feet; how deep 2. addition 3. 12 4. $4\frac{11}{12}$; $2\frac{9}{12}$
5. $4\frac{11}{12} + 2\frac{9}{12}$ 6. $7\frac{2}{3}$ feet 7. Sample answer: Subtract $4\frac{11}{12}$ feet from $7\frac{2}{3}$ feet and see whether the answer is $2\frac{3}{4}$ feet. 8. No, it will not quite rise to 30 feet.

Practice (adapted) 5-4

1. 1 2. 3 3. 5 4. $9\frac{7}{10}$ 5. $6\frac{3}{8}$ 6. $8\frac{11}{12}$ 7. $9\frac{1}{4}$ 8. $4\frac{1}{4}$ 9. $19\frac{7}{10}$
10. $13\frac{1}{4}$ 11. $15\frac{7}{10}$ 12. $7\frac{5}{12}$ 13. $10\frac{5}{8}$ 14. $8\frac{1}{3}$ 15. $9\frac{1}{2}$ 16. about 25 ft 17. $74\frac{15}{16}$ lb 18. < 19. < 20. >

Activity Lab 5-4

1. $1\frac{2}{3}; \frac{5}{3}$ 2. $1\frac{3}{5}; \frac{8}{5}$ 3. $1\frac{5}{8}; \frac{13}{8}$ 4. $1\frac{8}{13}; \frac{21}{13}$ 5. $1\frac{13}{21}; \frac{34}{21}$

Reteaching 5-4

1. $5\frac{5}{7}$ 2. $4\frac{2}{3}$ 3. $6\frac{1}{2}$ 4. $12\frac{1}{2}$ 5. $9\frac{7}{8}$ 6. $5\frac{9}{10}$ 7. $8\frac{2}{3}$ 8. $10\frac{5}{14}$ 9. $11\frac{7}{8}$
10. $6\frac{5}{8}$ 11. $16\frac{1}{2}$ 12. $11\frac{1}{15}$ 13. $15\frac{11}{20}$ 14. $9\frac{1}{2}$ 15. $11\frac{1}{10}$ 16. $9\frac{2}{5}$
17. $10\frac{1}{2}$ 18. $12\frac{11}{16}$

Enrichment 5-4

Name _____ Class _____ Date _____

Chapters 5–8 Answers (continued)

Puzzle 5-4

1–5.

$2\frac{6}{11}$	$2\frac{7}{11}$	$2\frac{2}{11}$
$2\frac{1}{11}$	$2\frac{5}{11}$	$2\frac{9}{11}$
$2\frac{8}{11}$	$2\frac{3}{11}$	$2\frac{4}{11}$

$1\frac{1}{8}$	$1\frac{3}{16}$	$1\frac{3}{8}$
$1\frac{5}{16}$	$1\frac{5}{16}$	$1\frac{1}{16}$
$1\frac{1}{4}$	$1\frac{3}{16}$	$1\frac{1}{4}$

$3\frac{1}{3}$	$2\frac{17}{18}$	$1\frac{1}{9}$
$1\frac{1}{3}$	$\frac{17}{18}$	$4\frac{5}{9}$
$2\frac{1}{6}$	$3\frac{1}{2}$	$1\frac{1}{6}$

$2\frac{1}{5}$	$1\frac{9}{10}$	$\frac{2}{5}$
$\frac{7}{10}$	$2\frac{1}{2}$	$1\frac{3}{10}$
$1\frac{3}{5}$	$\frac{1}{10}$	$2\frac{4}{5}$

$3\frac{1}{4}$	$1\frac{3}{4}$	$5\frac{1}{8}$
$6\frac{1}{2}$	$2\frac{3}{4}$	$\frac{7}{8}$
$\frac{3}{8}$	$5\frac{5}{8}$	$4\frac{1}{8}$

6. Check students' work.

Practice (regular) 5-5

1. $6\frac{13}{16}$ **2.** $5\frac{23}{24}$ **3.** $5\frac{3}{5}$ **4.** $2\frac{13}{16}$ **5.** $4\frac{23}{30}$ **6.** $4\frac{1}{2}$ **7.** $1\frac{5}{8}$ **8.** $2\frac{1}{16}$ **9.** $5\frac{5}{6}$
10. $\frac{7}{10}$ **11.** $7\frac{1}{12}$ **12.** $3\frac{9}{16}$ **13.** $13\frac{1}{3}$ **14.** $4\frac{3}{20}$ **15.** $2\frac{11}{12}$ **16.** $3\frac{1}{4}$
17. $6\frac{1}{12}$ **18.** $14\frac{13}{16}$ **19.** about $204 **20.** Sample answer: No; she will have only $1\frac{1}{4}$ yds left after the first project, and $1\frac{1}{4} < 1\frac{1}{3}$.
21. Answers may vary. Check students' work.

Guided Problem Solving 5-5

1. $15\frac{3}{4}$ inches; $18\frac{1}{2}$ inches; How much more **2.** Find the difference in the amounts of snowfall. **3.** $15\frac{3}{4}$ inches **4.** $18\frac{1}{2}$ inches **5.** 4
6. $15\frac{3}{4}, 18\frac{2}{4}$ **7.** $2\frac{3}{4}$ inches **8.** Sample answer: Add $15\frac{3}{4}$ to $2\frac{3}{4}$; the answer should be $18\frac{1}{2}$. **9.** $\frac{1}{3}$ yard; $\frac{14}{6} - 2\left(\frac{5}{6}\right) = \frac{2}{3}; \frac{2}{3} \div 2 = \frac{1}{3}$ yard

Practice (adapted) 5-5

1. $6\frac{13}{16}$ **2.** $5\frac{23}{24}$ **3.** $5\frac{3}{5}$ **4.** $2\frac{13}{16}$ **5.** $4\frac{23}{30}$ **6.** $4\frac{1}{2}$ **7.** $1\frac{5}{8}$ **8.** $2\frac{1}{16}$ **9.** $5\frac{5}{6}$
10. $\frac{7}{10}$ **11.** $7\frac{1}{12}$ **12.** $3\frac{9}{16}$ **13.** about $204
14. Check students' work.

Activity Lab 5-5

1a. 11 u 73/75 **1b.** $11\frac{73}{75}$ **2a.** 2 u 39/48 **2b.** $2\frac{39}{48}$ **2c.** 2 u 13/16
2d. $2\frac{13}{16}$ **2e.** no **3a.** 21.920879 **3b.** Sample answer: There is not enough room in the display to show the mixed numbers.
4. $4\frac{41}{60}$ **5.** $19\frac{37}{60}$

Reteaching 5-5

1. $5\frac{2}{5}$ **2.** $2\frac{1}{4}$ **3.** $4\frac{1}{2}$ **4.** $2\frac{1}{8}$ **5.** $5\frac{1}{4}$ **6.** $6\frac{1}{12}$ **7.** $2\frac{2}{3}$ **8.** $3\frac{7}{8}$ **9.** $2\frac{11}{14}$
10. $2\frac{5}{6}$ **11.** $3\frac{15}{16}$ **12.** $4\frac{11}{15}$ **13.** $3\frac{1}{16}$ **14.** $3\frac{2}{3}$ **15.** $6\frac{5}{8}$ **16.** $5\frac{3}{20}$
17. $7\frac{1}{12}$ **18.** $1\frac{3}{10}$

Enrichment 5-5

1. $80\frac{3}{8}$ points **2.** $26\frac{1}{2}$ points **3.** 8 **4a.** $80\frac{3}{8}$ **4b.** $26\frac{4}{8}$
5. subtraction **6.** $80\frac{3}{8} - x = 26\frac{4}{8}$ **7.** $53\frac{7}{8}$ **8.** $26\frac{4}{8} + x = 80\frac{3}{8}$
9. $75\frac{3}{4} - 18\frac{1}{8} = x; x = 57\frac{5}{8}$ **10.** $\frac{17}{24}$ **11.** $3\frac{5}{8}$ **12.** $7\frac{5}{8}$ **13.** $5\frac{7}{8}$

Puzzle 5-5

$17\frac{1}{5}; 11\frac{3}{10}; 7\frac{1}{2}; 5\frac{1}{2}; 3\frac{1}{8}; 0$; zero

Practice (regular) 5-6

1. $\frac{3}{17}$ **2.** $\frac{3}{7}$ **3.** $10\frac{3}{5}$ **4.** $5\frac{1}{16}$ **5.** $\frac{2}{5}$ **6.** $\frac{1}{2}$ **7.** $\frac{3}{11}$ **8.** $\frac{3}{4}$ **9.** $\frac{1}{3}$ **10.** $3\frac{3}{16}$
11. $5\frac{1}{9}$ **12.** $5\frac{1}{3}$ **13.** Sample answer: $\frac{1}{3} + x = \frac{7}{12}; \frac{1}{4}$ **14.** Sample answer: $\frac{9}{10} - x = \frac{7}{15}; \frac{13}{30}$ **15.** $78\frac{13}{24}$ lb

Guided Problem Solving 5-6

1. 10-yard; $5\frac{2}{3}$ yards; $3\frac{1}{2}$ yards **2.** Add the two lengths of edging and subtract the sum from 10 yards. **3.** $5\frac{2}{3}$ yards and $3\frac{1}{2}$ yards
4. $9\frac{1}{6}$ yards **5.** 10 yards **6.** $\frac{5}{6}$ yard **7.** Sample answer: Add $5\frac{2}{3}$, $3\frac{1}{2}$, and $\frac{5}{6}$; the answer should be 10. **8.** $1\frac{5}{12}$ yards

Practice (adapted) 5-6

1. $\frac{3}{17}$ **2.** $\frac{3}{7}$ **3.** $10\frac{3}{5}$ **4.** $5\frac{1}{16}$ **5.** $\frac{2}{5}$ **6.** $\frac{1}{2}$ **7.** $\frac{3}{11}$ **8.** $\frac{3}{4}$ **9.** $\frac{1}{3}$ **10.** $3\frac{3}{16}$
11. Sample answer: $\frac{1}{3} + x = \frac{7}{12}; \frac{1}{4}$ **12.** Sample answer: $\frac{9}{10} - x = \frac{7}{15}; \frac{13}{30}$

Activity Lab 5-6

1. $\frac{2}{5} + x = \frac{7}{8}; \frac{19}{40}$ km **2.** $x - \frac{2}{3} = \frac{5}{6}; 1\frac{1}{2}$ cups **3.** $x + 10\frac{4}{5} = 26\frac{1}{5}; 15\frac{2}{5}$ miles **4.** $1\frac{1}{4} + \frac{3}{5} + x = 5; 3\frac{3}{20}$ pounds **5.** Check students' work.
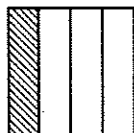
Reteaching 5-6

1. $\frac{3}{5}; \frac{3}{5}; \frac{3}{5} + \frac{1}{5} = \frac{4}{5}; \frac{4}{5} = \frac{4}{5}$ **2.** 9; $x - 3\frac{3}{9} = 4\frac{2}{9}; \frac{5}{9}; 7; 7\frac{5}{9}; 7\frac{5}{9} - 3\frac{3}{9} = 4\frac{2}{9}; 4\frac{2}{9} = 4\frac{2}{9}$ **3.** $\frac{2}{4} = \frac{1}{2}$ **4.** $\frac{6}{8} = \frac{3}{4}$ **5.** $\frac{3}{10}$ **6.** $\frac{23}{12} = 1\frac{11}{12}$ **7.** $\frac{2}{12} = \frac{1}{6}$
8. $\frac{4}{6} = \frac{2}{3}$ **9.** $3\frac{3}{12} = 3\frac{1}{4}$ **10.** $7\frac{3}{12} = 7\frac{1}{4}$
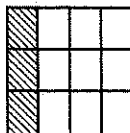
Reteaching 6-1

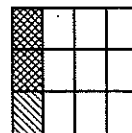**Multiplying Fractions**

You can model $\frac{2}{3}$ of $\frac{1}{4}$.

① Show $\frac{1}{4}$.

② Divide into thirds.
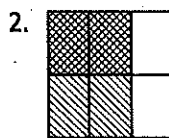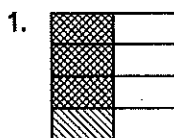
③ Shade $\frac{2}{3}$ of the $\frac{1}{4}$.

$\frac{2}{3}$ of $\frac{1}{4} = \frac{2}{12} = \frac{1}{6}$

Or you can use multiplication.

$$\frac{2}{3} \text{ of } \frac{1}{4} = \frac{2}{3} \times \frac{1}{4}$$
$$= \frac{2 \times 1}{3 \times 4}$$
$$= \frac{2}{12}$$
$$= \frac{1}{6}$$

Write the multiplication problem each model represents.

1.

2.

_____   _____

Find each product.

3. $\frac{1}{9}$ of $\frac{2}{3}$

4. $\frac{2}{7} \times \frac{1}{2}$

5. $\frac{5}{8} \cdot 6$

6. $\frac{3}{4} \cdot \frac{4}{7}$

_____   _____   _____   _____

7. $\frac{7}{10}$ of $\frac{1}{3}$

8. $\frac{5}{6} \times \frac{3}{4}$

9. $\frac{3}{8}$ of $\frac{7}{10}$

10. $\frac{3}{4} \times \frac{1}{9}$

_____   _____   _____   _____

11. $\frac{2}{9}$ of 8

12. $\frac{1}{3}$ of 2

13. $\frac{5}{9}$ of 4

14. $\frac{3}{4} \cdot \frac{2}{5}$

_____   _____   _____   _____

15. Every day you eat $\frac{1}{4}$ cup of cereal. Your brother eats 5 times as much. How many cups of cereal does your brother eat? _____

Practice 6-1

Multiplying Fractions

Draw a model to find each product.

1. $\frac{1}{6} \times \frac{3}{4}$

2. $\frac{2}{5} \times \frac{1}{2}$

Find each product.

3. $\frac{3}{5}$ of 10

4. $\frac{1}{4}$ of 12

5. $\frac{2}{3}$ of 6

6. $\frac{5}{6}$ of $\frac{3}{8}$

7. $\frac{3}{5}$ of $\frac{1}{2}$

8. $\frac{3}{4}$ of 12

9. $\frac{3}{16}$ of 8

10. $\frac{1}{2} \times \frac{5}{6}$

11. $\frac{3}{4} \times \frac{7}{8}$

12. $\frac{3}{5}$ of $\frac{3}{4}$

13. $\frac{1}{2} \cdot \frac{1}{3}$

14. $\frac{1}{8} \times \frac{3}{4}$

15. $\frac{2}{5} \times \frac{7}{11}$

16. $\frac{2}{3}$ of $\frac{1}{4}$

17. $\frac{2}{5} \cdot \frac{1}{2}$

18. $\frac{1}{4}$ of $\frac{4}{5}$

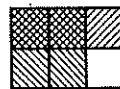19. $\frac{5}{6} \cdot \frac{2}{5}$

20. $\frac{2}{7}$ of $\frac{3}{5}$

21. $\frac{1}{3}$ of $\frac{9}{10}$

22. $\frac{1}{12} \times \frac{3}{4}$

23. $\frac{3}{10} \cdot \frac{3}{5}$

24. What product does the model represent?

_____

Solve.

25. A kitten eats $\frac{1}{4}$ cup of cat food. Another cat in the same household eats 6 times as much. How much food does the cat eat?

26. You brought home $\frac{1}{2}$ of a can of paint. You then used $\frac{2}{3}$ of the paint to cover a table top. What fraction of a full can of paint did you use?

Reteaching 6-2

Multiplying Mixed Numbers

Example 1: Multiply: $2\frac{1}{7} \times 2\frac{2}{5}$

① Change to improper fractions. $\frac{15}{7} \times \frac{12}{5}$

② Simplify. $\frac{\overset{3}{15}}{7} \times \frac{12}{\underset{1}{5}}$

③ Multiply. $\frac{36}{7} \leftarrow 3 \times 12$
$\phantom{\frac{36}{7}} \leftarrow 7 \times 1$

④ Simplify. $5\frac{1}{7}$

$2\frac{1}{7} \times 2\frac{2}{5} = 5\frac{1}{7}$

Example 2: Multiply: $\frac{2}{3} \times 5\frac{1}{4}$

$\frac{2}{3} \times \frac{21}{4}$

$\frac{1}{\underset{1}{\cancel{2}}}{\cancel{3}} \times \frac{\overset{7}{\cancel{21}}}{\underset{2}{\cancel{4}}}$

$\frac{7}{2} \leftarrow 1 \times 7$
$\phantom{\frac{7}{2}} \leftarrow 1 \times 2$

$3\frac{1}{2}$

$\frac{2}{3} \times 5\frac{1}{4} = 3\frac{1}{2}$

Find each product.

1. $1\frac{1}{4} \times 2\frac{2}{3}$

2. $2\frac{2}{5} \times 4\frac{1}{2}$

3. $3\frac{1}{7} \times 2\frac{4}{5}$

4. $\frac{1}{5} \times 2\frac{7}{9}$

5. $2\frac{1}{8} \times 2\frac{2}{3}$

6. $5\frac{1}{3} \times 1\frac{7}{8}$

7. $\frac{1}{2} \times 3\frac{3}{5}$

8. $2\frac{1}{7} \times 4\frac{2}{3}$

9. $1\frac{5}{6} \times 2\frac{1}{4}$

10. $5\frac{1}{4} \times 2\frac{2}{7}$

11. $\frac{1}{4} \times 1\frac{3}{5}$

12. $\frac{1}{7} \times 1\frac{3}{4}$

13. $3\frac{1}{3} \times 3\frac{3}{10}$

14. $1\frac{2}{3} \times 3\frac{1}{2}$

15. $1\frac{2}{5} \times 4\frac{1}{3}$

16. $\frac{1}{7} \times 1\frac{3}{5}$

17. $3\frac{2}{5} \times 2\frac{1}{2}$

18. $1\frac{2}{3} \times 7\frac{1}{2}$

19. $1\frac{3}{10} \times 2\frac{6}{7}$

20. $\frac{3}{16} \times 1\frac{1}{7}$

Solve.

21. Estimate the area of a window pane that has dimensions $6\frac{1}{8}$ by $11\frac{1}{4}$ inches.

22. A hamster is $2\frac{1}{2}$ inches long. A rabbit is $3\frac{1}{2}$ times as long as the hamster. How long is the rabbit?

Reteaching 6-3

Dividing Fractions

Find $8 \div \frac{4}{5}$.

① The *reciprocal* of $\frac{4}{5}$ is $\frac{5}{4}$.

$$\frac{4}{5} \diagup\!\!\!\!\diagdown \frac{5}{4}$$

② Multiply 8 by the reciprocal.

$8 \div \frac{4}{5} = 8 \times \frac{5}{4} = \frac{2\,\cancel{8}}{1} \times \frac{5}{\cancel{4}_1} = \frac{2 \times 5}{1 \times 1} = 10$

$8 \div \frac{4}{5} = 10$

Find $\frac{4}{9} \div \frac{8}{15}$.

① The *reciprocal* of $\frac{8}{15}$ is $\frac{15}{8}$.

$$\frac{8}{15} \diagup\!\!\!\!\diagdown \frac{15}{8}$$

② Multiply $\frac{4}{9}$ by the reciprocal.

$\frac{4}{9} \div \frac{8}{15} = \frac{4}{9} \times \frac{15}{8} = \frac{1\,\cancel{4}}{\cancel{9}_3} \times \frac{\cancel{15}^5}{\cancel{8}_2} = \frac{1 \times 5}{3 \times 2} = \frac{5}{6}$

$\frac{4}{9} \div \frac{8}{15} = \frac{5}{6}$

Write the reciprocal of each number.

1. $\frac{1}{4}$ _____

2. $\frac{5}{3}$ _____

3. $\frac{1}{20}$ _____

4. $\frac{8}{9}$ _____

5. 14 _____

6. 18 _____

7. $\frac{5}{9}$ _____

8. $\frac{3}{11}$ _____

9. $\frac{9}{7}$ _____

10. $\frac{11}{12}$ _____

11. $\frac{2}{7}$ _____

12. $\frac{3}{15}$ _____

Find each quotient.

13. $2 \div \frac{2}{3}$ _____

14. $7 \div \frac{7}{8}$ _____

15. $9 \div \frac{3}{4}$ _____

16. $6 \div \frac{2}{5}$ _____

17. $5 \div \frac{2}{3}$ _____

18. $14 \div \frac{5}{6}$ _____

19. $\frac{4}{5} \div \frac{4}{7}$ _____

20. $\frac{7}{8} \div \frac{7}{9}$ _____

21. $\frac{4}{7} \div 2$ _____

22. $\frac{7}{8} \div \frac{2}{3}$ _____

23. $\frac{1}{2} \div 4$ _____

24. $\frac{2}{5} \div \frac{3}{4}$ _____

25. $\frac{9}{10} \div 3$ _____

26. $\frac{3}{5} \div 5$ _____

27. $\frac{5}{8} \div 10$ _____

Name _____ Class _____ Date _____

Practice 6-3

Write the reciprocal of each number.

1. $\frac{7}{10}$ _____

2. 4 _____

3. $\frac{1}{3}$ _____

4. $\frac{1}{12}$ _____

5. Draw a diagram to show how many $\frac{3}{4}$-ft pieces of string can be cut from a piece of string $4\frac{1}{2}$ ft long.

Find each quotient.

6. $\frac{3}{10} \div \frac{4}{5}$ _____

7. $\frac{3}{8} \div 3$ _____

8. $\frac{1}{3} \div \frac{2}{7}$ _____

9. $\frac{1}{4} \div \frac{1}{4}$ _____

10. $\frac{7}{8} \div \frac{2}{7}$ _____

11. $\frac{1}{4} \div \frac{1}{8}$ _____

12. $\frac{1}{2} \div \frac{2}{5}$ _____

13. $\frac{8}{9} \div \frac{1}{2}$ _____

14. $3 \div \frac{3}{8}$ _____

Solve.

15. How many $\frac{3}{4}$-cup servings are there in a 6-cup package of rice?

_____

16. George cut 5 oranges into quarters. How many pieces of orange did he have?

_____

17. Maureen, Frank, Tashia, Zane, Eric, and Wesley are addressing envelopes for volunteer work at a local charity. They were given $\frac{3}{4}$ of an entire mailing to address to be evenly divided among six of them. What fraction of the entire mailing does each person address?

_____

18. Study the tangram pieces at the right. If the entire square is 1, find the fractional value of each piece. You can copy the tangram and cut the pieces to compare them.

Name _____ Class _____ Date _____
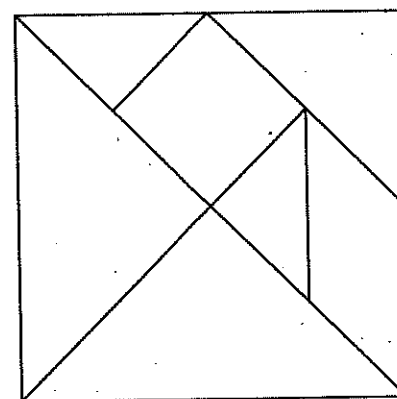
Reteaching 6-4

Dividing Mixed Numbers

Example 1: Estimate $36\frac{1}{3} \div 5\frac{7}{8}$.

$36\frac{1}{3} \div 5\frac{7}{8}$ Round mixed numbers to nearest whole number.

$36 \div 6 = 6$ Find the quotient of the rounded values.

Example 2: Find $5\frac{1}{3} \div 2\frac{2}{5}$.

① Write each mixed number as an improper fraction.

$$5\frac{1}{3} \div 2\frac{2}{5} = \frac{16}{3} \div \frac{12}{5}$$

② The *reciprocal* of $\frac{12}{5}$ is $\frac{5}{12}$.

$$\frac{12}{5} \diagdown \frac{5}{12}$$

③ Multiply $\frac{16}{3}$ by the reciprocal.

$$\frac{16}{3} \div \frac{12}{5} = \frac{4\,16}{3} \times \frac{5}{12_3} = \frac{4 \times 5}{3 \times 3} = \frac{20}{9} = 2\frac{2}{9}$$

$$5\frac{1}{3} \div 2\frac{2}{5} = 2\frac{2}{9}$$

Estimate each quotient.

1. $14\frac{8}{9} \div 5\frac{1}{5}$ _____

2. $19\frac{2}{3} \div 3\frac{8}{9}$ _____

3. $50\frac{2}{3} \div 2\frac{6}{7}$ _____

4. $5\frac{1}{3} \div 2\frac{2}{3}$ _____

5. $6\frac{1}{4} \div 2\frac{1}{2}$ _____

6. $9 \div 3\frac{1}{3}$ _____

7. $12 \div 6\frac{1}{2}$ _____

8. $5 \div 1\frac{1}{5}$ _____

9. $2\frac{7}{10} \div \frac{4}{5}$ _____

10. $6\frac{1}{2} \div 2\frac{1}{6}$ _____

11. $5\frac{2}{3} \div 1\frac{3}{4}$ _____

12. $5\frac{7}{8} \div 2\frac{1}{2}$ _____

Find each quotient.

13. $2\frac{1}{2} \div \frac{1}{4}$ _____

14. $100\frac{1}{8} \div 6\frac{1}{4}$ _____

15. $3\frac{2}{3} \div 1\frac{1}{2}$ _____

16. $6\frac{1}{8} \div 2\frac{2}{4}$ _____

17. $75\frac{1}{2} \div 5\frac{1}{2}$ _____

18. $1\frac{1}{6} \div 2\frac{2}{3}$ _____

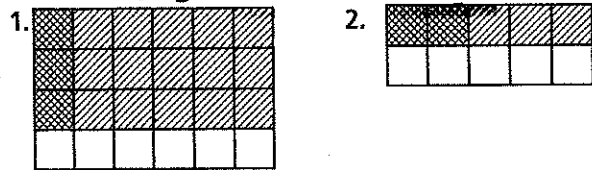19. $10\frac{2}{3} \div 4\frac{1}{3}$ _____

20. $18\frac{2}{9} \div 1\frac{1}{2}$ _____

21. $1\frac{1}{10} \div 1\frac{5}{6}$ _____

Chapters 5–8 Answers (continued)
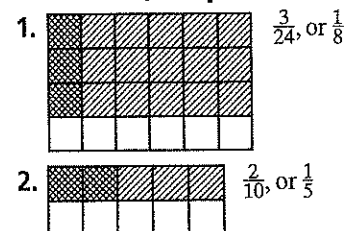
Chapter 6

Practice (regular) 6-1

1. **3.** 6 **4.** 3 **5.** 4 **6.** $\frac{5}{16}$ **7.** $\frac{3}{10}$ **8.** 9 **9.** $1\frac{1}{2}$ **10.** $\frac{5}{12}$ **11.** $\frac{21}{32}$ **12.** $\frac{9}{20}$
13. $\frac{1}{6}$ **14.** $\frac{3}{32}$ **15.** $\frac{14}{55}$ **16.** $\frac{1}{6}$ **17.** $\frac{1}{5}$ **18.** $\frac{1}{5}$ **19.** $\frac{1}{3}$ **20.** $\frac{6}{35}$ **21.** $\frac{3}{10}$
22. $\frac{1}{16}$ **23.** $\frac{9}{50}$ **24.** $\frac{2}{3} \times \frac{1}{2}$ **25.** $1\frac{1}{2}$ cups **26.** $\frac{1}{3}$

Guided Problem Solving 6-1

1. Find the width of the base. **2.** The words "$\frac{1}{10}$ of its height"
tell you to multiply. **3.** Write it as a fraction with a denominator
of 1. **4.** $\frac{1}{10} \times \frac{555}{1}$ **5.** $\frac{1}{(5 \cdot 2)} \times \frac{(5 \cdot 111)}{1} = \frac{1}{2} \times \frac{111}{1}$ **6.** $\frac{111}{2} = 55\frac{1}{2}$
7. 55.5 feet **8.** 60; yes **9.** 4,120 seats

Practice (adapted) 6-1

1. $\frac{3}{24}$, or $\frac{1}{8}$

2. $\frac{2}{10}$, or $\frac{1}{5}$

3. 6 **4.** 3 **5.** 4 **6.** $\frac{5}{16}$ **7.** $\frac{3}{10}$ **8.** 9 **9.** $1\frac{1}{2}$ **10.** $\frac{5}{12}$ **11.** $\frac{21}{32}$ **12.** $\frac{9}{20}$
13. $\frac{1}{6}$ **14.** $\frac{3}{32}$ **15.** $\frac{1}{6}$ **16.** $\frac{1}{5}$ **17.** $\frac{1}{5}$ **18.** $\frac{2}{3} \times \frac{1}{2}$ **19.** $1\frac{1}{2}$ cups **20.** $\frac{1}{3}$

Activity Lab 6-1

1. $\frac{2}{15}$ **2.** $\frac{102}{65}$ **3.** The numerator and denominator of the
product are the products of the numerators and denominators
of Fractions 1 and 2. **4.** $\frac{133}{48}$; Sample explanation: Rewrite
$3\frac{1}{6}$ as $\frac{19}{6}$. Use the spreadsheet to multiply numerators and
denominators, then make a fraction from the products.
5a. $\frac{300}{6,734}$ **5b.** $\frac{130}{231}$ **5c.** $\frac{43,040}{372,294}$ **5d.** $\frac{993,179,850}{264,834,058}$

Reteaching 6-1

1. $\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$ **2.** $\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$ **3.** $\frac{2}{27}$ **4.** $\frac{1}{7}$ **5.** $3\frac{3}{4}$ **6.** $\frac{3}{7}$ **7.** $\frac{7}{30}$
8. $\frac{5}{8}$ **9.** $\frac{21}{80}$ **10.** $\frac{1}{12}$ **11.** $1\frac{7}{9}$ **12.** $\frac{2}{3}$ **13.** $2\frac{2}{9}$ **14.** $\frac{3}{10}$ **15.** $1\frac{1}{4}$ cups

Enrichment 6-1

1. The recipe makes $1\frac{1}{2}$ quarts; 2 quarts are needed. **2.** More,
since 2 quarts is greater than $1\frac{1}{2}$ quarts. **3.** $1\frac{1}{2} = \frac{3}{2}$ **4.** When $\frac{4}{3}$ is
multiplied by $\frac{3}{2}$ the product is 2. **5.** $\frac{4}{3}$
6.

Fruit Dessert Recipe

Ingredient	1 quarts	2 quarts
sour cream	1 cup	$1\frac{1}{3}$ cups
orange marmalade	$\frac{1}{2}$ cup	$\frac{2}{3}$ cup
walnuts	$\frac{1}{4}$ cup	$\frac{1}{3}$ cup
milk	2 tbsp	$2\frac{2}{3}$ tbsp
can of fruit	1 can	$1\frac{1}{3}$ can

7. Divide 2 quarts by $1\frac{1}{2}$, then multiply the quotient by the
amounts of the ingredients.

Puzzle 6-1

1–6. Sample answers are given. **1.** $\frac{1}{4} \cdot \frac{2}{3}$ **2.** $\frac{3}{4} \cdot \frac{1}{2}$ **3.** $\frac{2}{4} \cdot \frac{3}{5}$
4. $\frac{2}{3} \cdot \frac{4}{5}$ **5.** $\frac{3}{4} \cdot \frac{5}{6} = \frac{5}{8}$ **6.** $\frac{4}{5} \cdot \frac{3}{6}$

Practice (regular) 6-2

1. 6 **2.** 21 **3.** 15 **4.** 10 **5.** 42 **6.** 77 **7.** 48 **8.** 16 **9.** 96 **10.** $4\frac{23}{24}$
11. $24\frac{15}{32}$ **12.** $15\frac{29}{64}$ **13.** $11\frac{2}{5}$ **14.** $38\frac{101}{120}$ **15.** $80\frac{1}{18}$ **16.** $45\frac{15}{16}$
17. $18\frac{3}{8}$ **18.** $89\frac{11}{21}$ **19.** $1\frac{7}{20}$ **20.** $1\frac{9}{10}$ **21.** 8 **22.** $20\frac{1}{4}$ **23.** $1\frac{1}{5}$
24. $3\frac{1}{5}$ **25.** $3\frac{1}{3}$ **26.** $\frac{2}{5}$ **27.** $8\frac{3}{4}$ **28.** $7\frac{1}{2}$ ft **29.** $4\frac{1}{2}$ cups; $3\frac{1}{2}$ cups;
3 cups; $1\frac{1}{2}$ cups

Guided Problem Solving 6-2

1. Find how many times taller the mother is than her son.
2. Rewrite each number as an improper fraction. **3.** $m = 1\frac{3}{8}d$
4. $d = 1\frac{1}{3}b$ **5.** $m = (1\frac{3}{8})(1\frac{1}{3}b)$ **6.** $m = 1\frac{5}{6}b$ **7.** $1\frac{5}{6}$
8. $1\frac{5}{6} \div 1\frac{1}{3} = 1\frac{3}{8}$; $1\frac{5}{6} \div 1\frac{1}{3} = 1\frac{3}{8}$ **9.** $21\frac{2}{3}$ in.

Practice (adapted) 6-2

1. 6 **2.** 21 **3.** 15 **4.** 10 **5.** 42 **6.** 77 **7.** $4\frac{23}{24}$ **8.** $24\frac{15}{32}$ **9.** $15\frac{29}{64}$
10. $11\frac{2}{5}$ **11.** $45\frac{15}{16}$ **12.** $18\frac{3}{8}$ **13.** $1\frac{7}{20}$ **14.** $1\frac{9}{10}$ **15.** 8 **16.** $20\frac{1}{4}$
17. $1\frac{1}{5}$ **18.** $3\frac{1}{5}$ **19.** $3\frac{1}{3}$ **20.** $\frac{2}{5}$ **21.** $8\frac{3}{4}$ **22.** $4\frac{1}{2}$ cups; $3\frac{1}{2}$ cups;
3 cups; $1\frac{1}{2}$ cups

Activity Lab 6-2

1a. Check students' work **1b.** 28 **1c.** $\frac{7}{2}$ **1d.** $\frac{4}{4}$ **1e.** $\frac{1}{8}$ **1f.** $32\frac{5}{8}$
1g. Multiply first, then add. **1h.** $32\frac{5}{8}$ cm **2.** $8\frac{1}{8}$ **3.** $5\frac{2}{3}$ **4.** $39\frac{1}{16}$
5. $45\frac{5}{6}$

Chapters 5–8 Answers (continued)

Reteaching 6-2

1. $3\frac{1}{3}$ **2.** $10\frac{4}{5}$ **3.** $8\frac{4}{5}$ **4.** $\frac{5}{9}$ **5.** $5\frac{2}{3}$ **6.** 10 **7.** $1\frac{4}{5}$ **8.** 10 **9.** $4\frac{1}{8}$ **10.** 12 **11.** $\frac{2}{5}$ **12.** $\frac{1}{4}$ **13.** 11 **14.** $5\frac{5}{6}$ **15.** $6\frac{1}{15}$ **16.** $\frac{8}{35}$ **17.** $8\frac{1}{2}$ **18.** $12\frac{1}{2}$ **19.** $3\frac{5}{7}$ **20.** $\frac{3}{14}$ **21.** 66 square inches **22.** $8\frac{3}{4}$ inches

Enrichment 6-2

1. $16\frac{1}{2}$ ft by $17\frac{1}{6}$ ft **2.** $10\frac{7}{12}$ ft by 14 ft **3.** Multiply length by width. **4.** $\frac{33}{2} \cdot \frac{103}{6}$ **5.** $(14 \cdot 10) + \left(14 \cdot \frac{7}{12}\right)$ **6.** subtraction **7.** $283\frac{1}{4}$ ft²; $148\frac{1}{6}$ ft² **8.** $135\frac{1}{12}$ ft² **9.** Sample answer: Yes; you would not need to calculate using fractions. **10.** Bedroom: $131\frac{1}{4}$ ft²; bathroom: 57 ft²; difference: $74\frac{1}{4}$ ft²
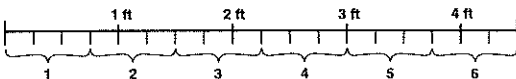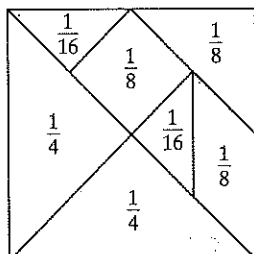
Puzzle 6-2

1.

$2\frac{1}{4}$	•	$\frac{4}{5}$	=	$\frac{9}{5}$
•		•		•
$1\frac{1}{6}$	•	$1\frac{1}{7}$	=	$\frac{4}{3}$
=		=		=
$\frac{21}{8}$	•	$\frac{32}{35}$	=	$\frac{12}{5}$

2.

$1\frac{1}{8}$	•	$3\frac{1}{3}$	=	$\frac{15}{4}$
•		•		•
$2\frac{3}{4}$	•	$\frac{1}{5}$	=	$\frac{11}{20}$
=		=		=
$\frac{99}{32}$	•	$\frac{2}{3}$	=	$\frac{33}{16}$

3.

$1\frac{1}{3}$	•	$2\frac{3}{4}$	=	$\frac{11}{3}$
•		•		•
6	•	$\frac{11}{12}$	=	$\frac{11}{2}$
=		=		=
8	•	$\frac{121}{48}$	=	$\frac{121}{6}$

4.

$3\frac{1}{4}$	•	$\frac{5}{7}$	=	$\frac{65}{28}$
•		•		•
$1\frac{1}{3}$	•	$1\frac{2}{5}$	=	$\frac{28}{15}$
=		=		=
$\frac{13}{3}$	•	1	=	$\frac{13}{3}$
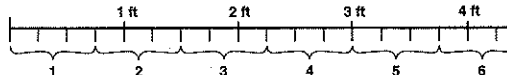
Practice (regular) 6-3

1. $\frac{10}{7}$ **2.** $\frac{1}{4}$ **3.** 3 **4.** 12

5. 6;

6. $\frac{3}{8}$ **7.** $\frac{1}{8}$ **8.** $1\frac{1}{6}$ **9.** 1 **10.** $3\frac{1}{16}$ **11.** 2 **12.** $1\frac{1}{4}$ **13.** $1\frac{7}{9}$ **14.** 8 **15.** 8 servings **16.** 20 pieces **17.** $\frac{1}{8}$

18.

Guided Problem Solving 6-3

1. Determine how many loaves of banana bread you can make with the oil. **2.** Multiply the first fraction by the reciprocal of the divisor. **3.** $\frac{2}{3}$ cup; the recipe needs $\frac{2}{3}$ cup of oil **4.** 3 cups **5.** 3 cups; that is the amount of oil available **6.** $3 \div \frac{2}{3}$ **7.** $3 \cdot \frac{3}{2}$ **8.** $\frac{9}{2}$ or $4\frac{1}{2}$ **9.** $4\frac{1}{2}$ loaves **10.** $4\frac{1}{2}$; yes **11.** 32 planters

Practice (adapted) 6-3

1. $\frac{10}{7}$ **2.** $\frac{1}{4}$ **3.** 3

4. 6;

5. $\frac{3}{8}$ **6.** $\frac{1}{8}$ **7.** $1\frac{1}{6}$ **8.** 1 **9.** $3\frac{1}{16}$ **10.** 2 **11.** $1\frac{1}{4}$ **12.** $1\frac{7}{9}$ **13.** 8 **14.** 8 servings **15.** 20 pieces **16.** $\frac{1}{8}$

Activity Lab 6-3

1. $13\frac{1}{3}$ **2.** $19\frac{4}{5}$ **3.** $34\frac{2}{15}$ **4.** $5\frac{1}{4}$ **5.** $6\frac{19}{28}$ **6.** $\frac{528}{665}$ **7.** $\frac{2}{33}$ **8.** $\frac{8}{135}$ **9.** $\frac{19}{248}$

Reteaching 6-3

1. 4 **2.** $\frac{3}{5}$ **3.** 20 **4.** $\frac{9}{8}$ **5.** $\frac{1}{14}$ **6.** $\frac{1}{18}$ **7.** $\frac{9}{5}$ **8.** $\frac{11}{3}$ **9.** $\frac{7}{9}$ **10.** $\frac{12}{11}$ **11.** $\frac{7}{2}$ **12.** $\frac{15}{3}$ **13.** 3 **14.** 8 **15.** 12 **16.** 15 **17.** $7\frac{1}{2}$ **18.** $16\frac{4}{5}$ **19.** $1\frac{2}{5}$ **20.** $1\frac{1}{8}$ **21.** $\frac{2}{7}$ **22.** $1\frac{5}{16}$ **23.** $\frac{1}{8}$ **24.** $\frac{8}{15}$ **25.** $\frac{3}{10}$ **26.** $\frac{3}{25}$ **27.** $\frac{1}{16}$

Enrichment 6-3

1–10. Sample answers are given. **1.** $1, \frac{1}{3}, \frac{1}{9}$; Divide by 3. **2.** $\frac{2}{5}, \frac{2}{25}, \frac{2}{125}$; Divide by 5. **3.** 4,096, 32,768, 262,144; Multiply by 8. **4.** $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}$; Divide by 10. **5.** 32, 128, 512; Multiply by 4. **6.** $\frac{8}{27}, \frac{16}{81}, \frac{32}{243}$; Multiply by $\frac{2}{3}$. **7.** Multiply by $\frac{1}{2}$. **8a.** Multiply by $\frac{1}{3}$. **8b.** Multiply by $\frac{1}{5}$. **8c.** Divide by $\frac{1}{8}$. **8d.** Multiply by $\frac{1}{10}$. **8e.** Divide by $\frac{1}{4}$. **8f.** Divide by $\frac{3}{2}$. **9.** Multiply by $\frac{1}{2}$; divide by 2.
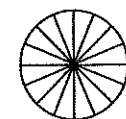
10. Multiply by 2; divide by $\frac{1}{2}$.
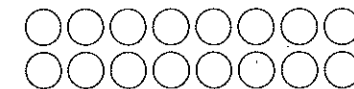
Puzzle 6-3

1. 2 **2.** $1\frac{2}{3}$ **3.** $1\frac{1}{2}$ **4.** $\frac{4}{5}$ **5.** 4 **6.** $1\frac{1}{2}$ **7.** 3 **8.** $\frac{1}{3}$ **9.** $3\frac{3}{4}$

Chapters 5–8 Answers (continued)

Practice (regular) 6-4

1. about 1 **2.** about 2 **3.** about 3 **4.** about 0 **5.** about 6
6. about 10 **7.** about 2 **8.** about 22 **9.** about 11 **10.** $5\frac{2}{5}$
11. $13\frac{1}{3}$ **12.** $1\frac{1}{49}$ **13.** $\frac{2}{23}$ **14.** $9\frac{5}{8}$ **15.** $\frac{56}{95}$ **16.** $1\frac{1}{35}$ **17.** $\frac{2}{13}$
18. $1\frac{37}{54}$ **19.** $\frac{2}{13}$ **20.** $3\frac{33}{49}$ **21.** $\frac{4}{17}$ **22.** $\frac{9}{56}$ **23.** $8\frac{3}{4}$ **24.** $2\frac{6}{7}$ **25.** $\frac{9}{10}$
26. $2\frac{37}{40}$ **27.** $4\frac{4}{5}$ **28.** 7 pillows **29.** 15 pillows **30.** 16 columns

Guided Problem Solving 6-4

1. Estimate the number of strips of insulation that are needed.
2. $1\frac{1}{3}$ **3.** 1 **4.** 24 **5.** 24 strips **6.** Divide 24 by $1\frac{1}{3}$ to see if it is
close to the estimate. **7.** 5 shirts

Practice (adapted) 6-4

1. about 1 **2.** about 2 **3.** about 3 **4.** about 0 **5.** about 6
6. about 10 **7.** $5\frac{2}{5}$ **8.** $13\frac{1}{3}$ **9.** $1\frac{1}{49}$ **10.** $\frac{2}{23}$ **11.** $9\frac{5}{8}$ **12.** $\frac{56}{95}$ **13.** $1\frac{1}{35}$
14. $\frac{2}{13}$ **15.** $1\frac{37}{54}$ **16.** $\frac{2}{13}$ **17.** $\frac{9}{56}$ **18.** $\frac{9}{10}$ **19.** 7 pillows
20. 15 pillows

Activity Lab 6-4

1. Divide each quantity by 2. **2a.** $1\frac{1}{4}$ cups flour **2b.** $\frac{5}{8}$ cup
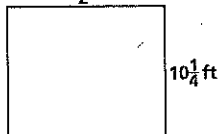salt **2c.** 1 tablespoon cream of tartar **2d.** $1\frac{1}{2}$ **3–4.** Check
students' work.

Reteaching 6-4

1. 3 **2.** 5 **3.** 17 **4.** 2 **5.** 3 **6.** 3 **7.** 2 **8.** 5 **9.** 3 **10.** 3 **11.** 3
12. 2 **13.** 10 **14.** $16\frac{1}{50}$ **15.** $2\frac{4}{9}$ **16.** $2\frac{9}{20}$ **17.** $13\frac{8}{11}$ **18.** $\frac{7}{16}$
19. $2\frac{6}{13}$ **20.** $12\frac{4}{27}$ **21.** $\frac{3}{5}$

Enrichment 6-4

1. $4\frac{3}{8}$ inches; $12\frac{1}{2}$ ft by $10\frac{1}{4}$ ft
2.

$12\frac{1}{2}$ ft
$10\frac{1}{4}$ ft

3. Sample answer: $2 \cdot \left(12\frac{1}{2} + 10\frac{1}{4}\right)$ **4.** division **5.** Sample
answer: so that the units are the same **6.** $45\frac{1}{2}$ feet; 546 inches
7. $124\frac{4}{5}$ times **8.** Yes; the distance and border would still be the
same unit. **9.** 168 times

Puzzle 6-4
MUFFINS

Practice (regular) 6-5

1. 2 **2.** 42 **3.** 57 **4.** 36 **5.** 8 **6.** 18 **7.** $\frac{7}{8}$ **8.** $1\frac{2}{5}$ **9.** $\frac{4}{7}$ **10.** 8
11. $3\frac{3}{7}$ **12.** $1\frac{11}{25}$ **13.** $\frac{9}{16}$ **14.** $6\frac{1}{4}$ **15.** $\frac{7}{20}$ **16.** $4\frac{1}{2}$ **17.** $\frac{17}{24}$ **18.** $\frac{1}{3}$
19. $\frac{3}{4}x = 1; 1\frac{1}{3}$ in. **20.** $\frac{3}{22}$

Guided Problem Solving 6-5

1. Find the cost of the pants. **2.** Sample answer: Let $p =$ the cost
of the pants. **3.** $\frac{5}{6}; p; 12.50$ **4.** $\frac{5}{6}p$ **5.** $12.50 **6.** $\frac{5}{6}p = 12.50$
7. Multiply by $\frac{6}{5}$. **8.** $p = 15$ **9.** $15 **10.** yes; $\frac{5}{6} \times 15 = 12.50$
11. $26\frac{2}{3}$ cans

Practice (adapted) 6-5

1. 2 **2.** 42 **3.** 57 **4.** 36 **5.** 8 **6.** 18 **7.** $\frac{7}{8}$ **8.** $1\frac{2}{5}$ **9.** $\frac{4}{7}$ **10.** 8
11. $3\frac{3}{7}$ **12.** $1\frac{11}{25}$ **13.** $\frac{9}{16}$ **14.** $6\frac{1}{4}$ **15.** $\frac{7}{20}$ **16.** $\frac{3}{4}x = 1; 1\frac{1}{3}$ in. **17.** $\frac{3}{22}$

Activity Lab 6-5

1. $4\frac{1}{2}; 4\frac{1}{2}$ **2.** $5\frac{1}{3}; 5\frac{1}{3}$ **3.** $6\frac{1}{4}; 6\frac{1}{4}$ **4.** $7\frac{1}{5}; 7\frac{1}{5}$ **5.** $8\frac{1}{6}; 8\frac{1}{6}$ **6.** $9\frac{1}{7}; 9\frac{1}{7}$
7. $10\frac{1}{8}; 10\frac{1}{8}$ **8.** $11\frac{1}{9}; 11\frac{1}{9}$ **9.** $12\frac{1}{10}; 12\frac{1}{10}$ **10.** The sums and
products are equal. **11.** Whole number part increases by 1.
Denominator of fraction part also increases by 1. Numerators
are all 1. **12.** Numerator of the second number is the same as
the first number. Denominator is 1 less than numerator.
13. Sample answer: $12 + \frac{12}{11} = 13\frac{1}{11}; 12 \times \frac{12}{11} = 13\frac{1}{11}$

Reteaching 6-5

1. $\frac{4}{5}$ **2.** $\frac{3}{5}$ **3.** 12 **4.** 3 **5.** $\frac{2}{5}$ **6.** $\frac{1}{5}$ **7.** $\frac{2}{9}$ **8.** $\frac{7}{12}$ **9.** $110\frac{1}{4}$ pounds **10.** $40\frac{1}{2}$

Enrichment 6-5

1. $\frac{1}{3}$ palm **2.** $\frac{1}{9}$ span **3a.** division **3b.** division **4.** Sample
answer: Both use the same operation and have fractional
amounts. **5.** $p \div \frac{1}{3} = 12$ **6.** 4 palms **7.** $s \div \frac{1}{9} = 18$ **8.** 2 spans
9. Sample answer: Substitute the answer into the equation,
then solve. **10.** Sample answer: $16 \div \frac{1}{3} = p; p = 48$; 48 in.

Puzzle 6-5
THOMAS JEFFERSON

Practice (regular) 6-6

1. Feet; a stop sign is much taller than a bottle cap. **2.** Inches;
a leaf is shorter than a male's foot. **3.** Feet; a door is much
narrower than a football field. **4.** Miles; the ocean is deeper
than 14 football fields in most places. **5.** Ounces; a notebook is
lighter than a loaf of bread. **6.** Pounds; a couch is lighter than
two pianos. **7.** Tons; a garbage truck is heavier than two pianos.
8. Pounds; a box of books is lighter than two pianos. **9.** Gallons;

Practice 1-7

Adding and Subtracting Decimals

First estimate. Then find each sum or difference.

1. $0.6 + 5.8$

2. $2.1 + 3.4$

3. $3.4 - 0.972$

4. $3.1 - 2.076$

_____ _____ _____ _____

5. $8.13 - 2.716$

6. $5.91 + 2.38$

7. $3.086 + 6.152$

8. $4.7 - 1.9$

_____ _____ _____ _____

9. $9.3 - 3.9$

10. $5.2 - 1.86$

11. $15.98 + 26.37$

12. $9.27 + 15.006$

_____ _____ _____ _____

13. $5.9 - 2.803$

14. $15.7 - 8.923$

15. $4.19 - 2.016$

16. $14.75 - 6.9264$

_____ _____ _____ _____

Use front-end estimation to estimate each sum.

17. $12 + 0.25 + 4.75$

18. $18.5 + 0.25 + 0.25$

19. $17 + 23 + 10.6$

_____ _____ _____

20. $11.3 + 5.7$

21. $5 + 6.2 + 4.05$

22. $50.6 + 10.4 + 20$

_____ _____ _____

23. $2.1 + 0.6 + 0.3$

24. $14.3 + 16$

25. $4.9 + 0.6 + 4$

_____ _____ _____

Use the table at the right for Exercises 26–28.

26. Find the sum of the decimals given in the chart. What is the meaning of this sum?

_____

_____

27. What part of the hourly work force is aged 25–44?

_____

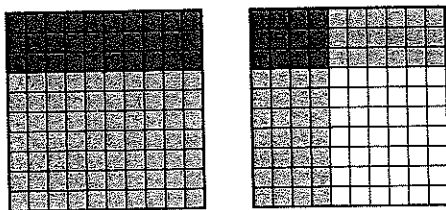**28.** Which three age groups combined represent one-fourth of the hourly work force?

_____

_____

Ages of Workers Earning Hourly Pay

Age of Workers	Part of Work Force
16–19	0.08
20–24	0.15
25–34	0.29
35–44	0.24
45–54	0.14
55–64	0.08
65 & over	0.02

Name _____ Class _____ Date _____

Reteaching 1-8

Multiplying Decimals

Multiply 0.3×1.4. This drawing can help you find 0.3×1.4.

**Each small square is 1 hundredth or 0.01.
Each column or row is 10 hundredths
or 1 tenth or 0.1.**

(1) Shade 3 rows across to represent 0.3.

(2) Shade 14 columns down to represent 1.4.

(3) The area where the shading overlaps is 42 hundredths or 0.42.

$$0.3 \times 1.4 = 0.42$$

Compare the result from the model to the result of multiplying the factors.

$$
\begin{array}{r}
0.3 \quad \leftarrow \text{1 decimal place} \\
\times 1.4 \quad \leftarrow +\text{1 decimal place} \\
\hline
1\,2 \\
+\,0\,3\,0 \\
\hline
0.42 \quad \leftarrow \text{2 decimal places}
\end{array}
$$

When multiplying decimals, first multiply the factors as though they are whole numbers. Then add the number of decimal places in each factor to find the number of decimal places in the product.

Write a multiplication statement to describe each model.

1. _____

2. _____
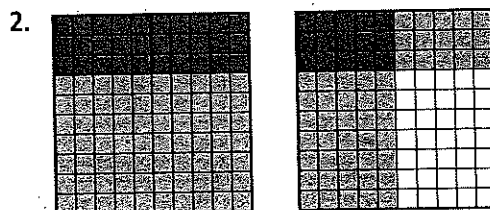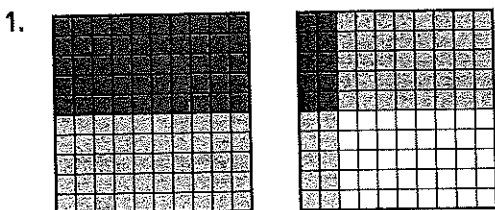
For each product, place the decimal point in the correct place.

3.
$$
\begin{array}{r}
0.9 \\
\times 2.8 \\
\hline
252
\end{array}
$$

4.
$$
\begin{array}{r}
3.1 \\
\times 77 \\
\hline
2387
\end{array}
$$

5.
$$
\begin{array}{r}
6.22 \\
\times 8 \\
\hline
4976
\end{array}
$$

Find each product.

6.
$$
\begin{array}{r}
1.6 \\
\times 3.7 \\
\hline
\end{array}
$$

7.
$$
\begin{array}{r}
8.12 \\
\times 59 \\
\hline
\end{array}
$$

8.
$$
\begin{array}{r}
12.3 \\
\times 6.1 \\
\hline
\end{array}
$$

9.
$$
\begin{array}{r}
23.4 \\
\times 5.2 \\
\hline
\end{array}
$$

10.
$$
\begin{array}{r}
4.8 \\
\times 42 \\
\hline
\end{array}
$$

11.
$$
\begin{array}{r}
9.2 \\
\times 12.4 \\
\hline
\end{array}
$$

Reteaching

Course 1 Lesson 1-8

63

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Practice 1-8

Multiplying Decimals

Place the decimal point in each product.

1. $4.3 \times 2.9 = 1247$

_____

2. $0.279 \times 53 = 14787$

_____

3. $4.09 \times 3.96 = 161964$

_____

4. $5.90 \times 6.3 = 3717$

_____

5. $0.74 \times 83 = 6142$

_____

6. $2.06 \times 15.9 = 32754$

_____

Find each product.

7. 43.59×0.1

_____

8. 246×0.01

_____

9. $\begin{array}{r} 5.342 \\ \times \quad 13 \\ \hline \end{array}$

10. $\begin{array}{r} 0.19 \\ \times \ 0.05 \\ \hline \end{array}$

_____

11. $\begin{array}{r} 240 \\ \times \ 0.02 \\ \hline \end{array}$

_____

12. $\begin{array}{r} 43.79 \\ \times \quad 42 \\ \hline \end{array}$

_____

Write a multiplication statement you could use for each situation.

13. A pen costs $.59. How much would a dozen pens cost?

_____

14. A mint costs $.02. How much would a roll of 10 mints cost?

_____

15. An orange costs $.09. How much would 2 dozen oranges cost?

_____

Find each product. Tell whether you would use mental math, paper and pencil, or a calculator.
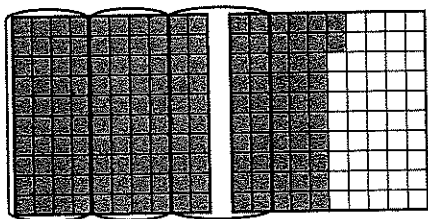
16. $19(0.35)$

_____

_____

17. 30×0.1

_____

_____

18. 22.62×1.08

_____

_____

Name _____ Class _____ Date _____

Reteaching 1-9

Find the quotient $1.52 \div 0.4$.

You can use a model to estimate the quotient.

← Draw a model for 1.52.

← Since each square is 0.01, 40 squares represent 0.4. Circle groups of 0.4.

There are close to four groups of 0.4. The quotient is about 4.

① Multiply the dividend and divisor by 10 so that the divisor is a whole number.
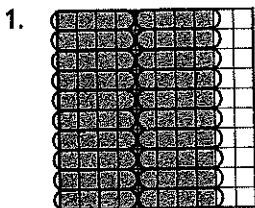
$$0.4\overline{)1.52}$$

② Divide as with whole numbers.

$$\begin{array}{r} 38 \\ 4\overline{)15.2} \\ -12 \\ \hline 32 \\ -32 \\ \hline 0 \end{array}$$

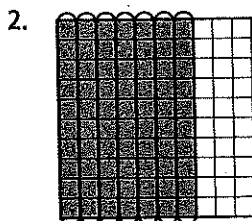③ Place the decimal point in the quotient above its place in the dividend. Insert zeros as placeholders if necessary.

$$\begin{array}{r} 3.8 \\ 4\overline{)15.2} \\ -12 \\ \hline 32 \\ -32 \\ \hline 0 \end{array}$$
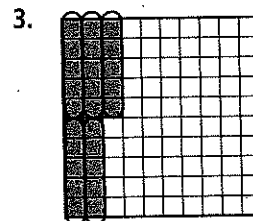
3.8 is close to 4.

Use the model to find each quotient.

1.

$0.8 \div$ _____ $= 20$

2.

$0.70 \div 0.1 =$ _____

3.

_____ $\div 0.05 =$ _____

Estimate, then find each quotient.

4. $3\overline{)1.35}$

5. $4\overline{)2.68}$

6. $8.4 \div 6$

_____

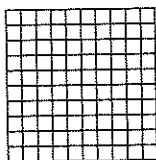7. $8\overline{)27}$

8. $12.96 \div 5$

9. $3 \div 0.12$

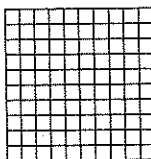10. $1.5\overline{)84}$

11. $78 \div 15.6$

12. $0.9\overline{)1.35}$
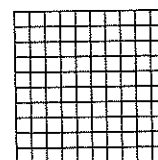
Practice 1-9

Draw a model to find each quotient.

1. $0.4 \div 0.08$ _____

2. $0.8 \div 0.4$ _____

3. $0.9 \div 0.15$ _____

Find each quotient.

4. $1.8 \div 6$

5. $16\overline{)3.2}$

6. $17\overline{)5.1}$

_____

_____

_____

7. $9\overline{)21.6}$

8. $15\overline{)123}$

9. $108 \div 5$

_____

_____

_____

10. $50\overline{)17.5}$

11. $14\overline{)889}$

12. $5\overline{)316}$

_____

_____

_____

Solve.

13. A package of 25 mechanical pencils costs \$5.75. How much does each pencil cost?

_____

14. A sales clerk is placing books side by side on a shelf. She has 12 copies of the same book. If the books cover 27.6 in. of the shelf, how thick is each book?

_____

15. The salt content in the Caspian Sea is 0.13 kg for every liter of water. How many kg of salt are in 70 liters?

_____

Find each quotient.

16. $0.4 \div 0.02$

17. $3.9 \div 0.05$

18. $0.2\overline{)26}$

_____

_____

_____

19. $0.68 \div 0.2$

20. $0.02\overline{)0.06}$

21. $0.09\overline{)0.108}$

_____

_____

_____

Chapters 1–4 Answers (continued)

Enrichment 1-6

1.

2.

3. 0.26, 0.5 and 0.50, 0.60, 0.62, 0.7 **4a.** 10.54, 10.75, 10.82, 10.94, 10.97 **4b.** 1988 **4c.** No; the winner of the 1996 Olympics ran slower than the winner of the 1992 Olympics.

Puzzle 1-6

1. 9,876,543.201 **2.** 1,023,456.789 **3.** 4,987,653.210
4. 8,012,345.679 **5.** 2,598,764.301
6–9.

Practice (regular) 1-7

1. 6.4 **2.** 5.5 **3.** 2.428 **4.** 1.024 **5.** 5.414 **6.** 8.29 **7.** 9.238 **8.** 2.8 **9.** 5.4 **10.** 3.34 **11.** 42.35 **12.** 24.276 **13.** 3.097 **14.** 6.777 **15.** 2.174 **16.** 7.8236 **17.** 17 **18.** 19 **19.** 50 **20.** 17 **21.** 15 **22.** 81 **23.** 3 **24.** 30 **25.** 10 **26.** 1; the sum represents all workers earning hourly pay. **27.** $0.29 + 0.24 = 0.53$ **28.** 16–19, 20–24, and 65 & over; or 20–24, 55–64, and 65 & over

Guided Problem Solving 1-7

1. Find the population of Maine. **2.** Subtract the population of each state from the total. **3.** 12.67 million **4.** 13.92 million **5.** $13.92 - 12.67$ **6.** $13.92 - 12.67 = 1.25$ **7.** 1.25 million **8.** Add 1.25 million to the total of the other states' population. The total should be 13.92 million. **9.** your friend; $85.65 - 83.50 = 2.15$

Practice (adapted) 1-7

1. 6.4 **2.** 5.5 **3.** 2.428 **4.** 1.024 **5.** 5.414 **6.** 8.29 **7.** 9.238 **8.** 2.8 **9.** 5.4 **10.** 17 **11.** 19 **12.** 17 **13.** 81 **14.** 3 **15.** 30.3 **16.** 1; it includes all workers who are paid on an hourly basis. **17.** 0.24

Activity Lab 1-7

1a. 0.1 **1b.** 10 **1c.** 0.3 **1d.** 30 **1e.** 0.37 **1f.** 37 **2a.** 1 row and 5 single tiles; 2 rows and 9 single tiles **2b.** 3 rows and 14 single tiles **2c.** 1 row **2d.** 4 rows and 4 single tiles; 0.44 **3a–c.** Check students' work. **4a.** 3 rows and 6 single tiles **4b.** 7 tiles **4c.** 2 rows and 9 single tiles; 0.29 **5a–d.** Check students' work.

Reteaching 1-7

1. $1 + 7 = 8; 7.6$ **2.** $3 + 9 = 12; 12.5$ **3.** $5 + 8 = 13; 13.07$
4. 23.8 **5.** 7 **6.** 22.104 **7.** $9 - 4 = 5; 4.3$ **8.** $7 - 3 = 4; 4.15$
9. $5 - 3 = 2; 2.27$ **10.** $6 - 3 = 3; 3.361$ **11.** $14 - 10 = 4; 4.34$
12. $13 - 5 = 8; 8.449$

Enrichment 1-7

1. Sample answers: vegetable burger, carrot cake, bottled water; vegetable burger, carrot cake, orange juice; vegetable burger, apple pie, bottled water; mushroom burger, carrot cake, bottled water **2.** any combination of a special, drink, and dessert **3.** Sample answer: If they share equally, each girl will have $7 to spend after deducting the tip and can choose from the options in Question 1. **4.** About $64 since a special costs about $5, a dessert costs about $2, and a drink costs about $1, which comes to a total of $8 per meal. $8 \times 8 = \$64$ for 8 students.

Puzzle 1-7

A = 4.5 B = 7.653 C = 7.615 D = 5.833 E = 5.22.578
F = 6.76 H = 11.42 I = 12.78 L = 8.01 M = 32.6 N = 3.18
O = 12.79 P = 0.379 R = 6.62 S = 3.64 T = 5.75 U = 1.17
V = 29.7 W = 9.16 Y = 1.22
BECAUSE THEY HAVE THEIR OWN SCALES

Practice (regular) 1-8

1. 12.47 **2.** 14.787 **3.** 16.1964 **4.** 37.17 **5.** 61.42 **6.** 32.754 **7.** 4.359 **8.** 2.46 **9.** 69.446 **10.** 0.0095 **11.** 4.8 **12.** 1,839.18 **13.** $12 \times \$.59 = \$7.08$ **14.** $10 \times \$.02 = \$.20$ **15.** $\$.09 \times 24 = \$2.16$ **16.** paper and pencil; 6.65 **17.** mental math; 3 **18.** calculator; 24.4296

Guided Problem Solving 1-8

1. the amount of calcium in one serving and the amount of calcium in 3.25 servings of cheddar cheese **2.** Determine the amount of calcium in 3.25 servings. **3.** Multiply, because you know the amount of calcium in one serving and want to know how much is in 3.25 servings. **4.** 0.2 gram **5.** 3.25 servings **6.** 0.2×3.25 **7.** 0.65 gram **8.** More; 3.25 servings is more than 1 serving. **9.** 2.125 grams

Chapters 1–4 Answers (continued)

Practice (adapted) 1-8

1. 12.47 **2.** 14.787 **3.** 37.17 **4.** 61.42 **5.** 4.359 **6.** 2.46 **7.** 72.6 **8.** 0.0095 **9.** 0.576 **10.** 4.8 **11.** $7.08 **12.** $.20 **13.** paper and pencil; 6.65 **14.** mental math; 3

Activity Lab 1-8

1–2. Check students' work. **3.** Sample answer: Multiply each product by the third number to get the product for the second table. **4.** Sample answer: The second products are smaller because the first products are multiplied by a decimal less than 1.

Reteaching 1-8

1. $0.5 \times 1.2 = 0.60$ **2.** $0.3 \times 1.5 = 0.45$ **3.** 2.52 **4.** 238.7 **5.** 49.76 **6.** 5.92 **7.** 479.08 **8.** 75.03 **9.** 121.68 **10.** 201.6 **11.** 114.08

Enrichment 1-8

1. $320.00

2.

Store A	Yards per costume	Cost per yard	Cost per costume	Number of costumes	Total cost
Red	3.5	$4.75	$16.625	8	$133.00
Brown	3.25	$4.25	$13.8125	12	$165.75
Both					$298.75

Store B	Yards per costume	Cost per yard	Cost per costume	Number of costumes	Total cost
Red	3.5	$4.50	$15.75	8	$126.00
Brown	3.25	$4.50	$14.625	12	$175.50
Both					$301.50

3. Sample answer: Store B because the difference in cost is small and the store is close to the school. The coupon is not useful unless more fabric will be needed.

Puzzle 1-8

1. 13.12 **2.** 36.9 **3.** 16.8 **4.** 540 **5.** 0.84 **6.** Check students' answers. **7.** 0.16 **8.** 86.58 **9.** 18.64 **10.** 85.28 **11–12.** Check students' answers.

Practice (regular) 1-9

1. 5; **2.** 2;

3. 9;
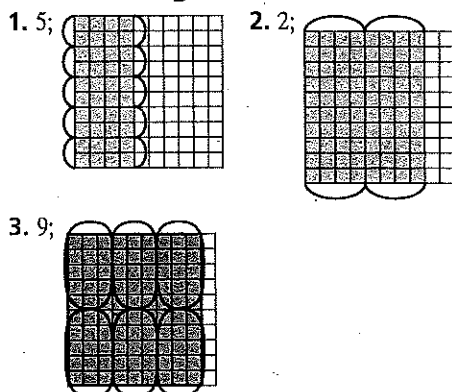
4. 0.3 **5.** 0.2 **6.** 0.3 **7.** 2.4 **8.** 8.2 **9.** 21.6 **10.** 0.35 **11.** 63.5 **12.** 63.2 **13.** $.23 **14.** 2.3 in. **15.** 9.10 kg **16.** 20 **17.** 78 **18.** 130 **19.** 3.4 **20.** 3 **21.** 1.2

Guided Problem Solving 1-9

1. 0.9 centimeter, 0.01 centimeter, 25 students **2.** Find the number of pieces of paper in the stack. **3.** Determine if there is enough paper for each of 25 students to get three pieces of paper. **4.** 0.01 centimeter **5.** 0.9 centimeter **6.** divide **7.** $0.9 \div 0.01$ **8.** 90 **9.** 75 **10.** yes **11.** Sample answer: because each piece of paper is 0.01 cm thick **12.** 54 baseball cards

Practice (adapted) 1-9

1. 5; **2.** 2;
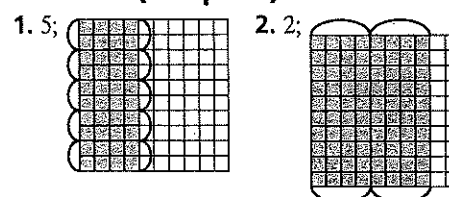
3. 0.3 **4.** 0.2 **5.** 0.3 **6.** 8.2 **7.** 21.6 **8.** 0.35 **9.** $.23 **10.** 9.10 kg **11.** 20 **12.** 78 **13.** 130 **14.** 2.7 **15.** 3.4 **16.** 3

Activity Lab 1-9

1. 4 **2.** 3 **3.** 0.06 **4.** 1.4 **5.** 0.5 **6.** 12.42 **7.** 2.1 **8.** 1 **9.** 3 **10.** 3 **11.** $4.32

Reteaching 1-9

1. 0.04 **2.** 7 **3.** 0.25; 5 **4.** 0.45 **5.** 0.67 **6.** 1.4 **7.** 3.375 **8.** 2.592 **9.** 25 **10.** 56 **11.** 5 **12.** 1.5

Enrichment 1-9

1. Sample answer: Single servings are convenient to take in lunches; gallons are better for a large group. **2.** single: $.32; quart: $.28; two quarts: $.27; gallon: $.22; a gallon is the least expensive. **3.** Sample answer: One gallon and two quarts is the least expensive choice, although there would be 2 servings left over. **4–6.** Check students' answers.

Puzzle 1-9

1. 5.2 **2.** 8.8 **3.** 5.4 **4.** 5.6 **5.** 7.7 **6.** 4.9 **7.** 5.6 **8.** 9.3 **9.** 7.2 **10.** 1.9 **11.** 4.3 **12.** 5.6 **13.** 6.5 **14.** 7.6 **15.** 8.4 **16.** 4.5 **17.** 4.3 **18.** 7.1
COLUMBIA UNIVERSITY

Chapter 1A Graphic Organizer

1. 12 **2.** in the back of the book **3.** 9 **4.** Writing Gridded Responses **5.** Check students' diagrams.

Name _____ Class _____ Date _____

Reteaching 4-1

Divisibility and Mental Math

A number is **divisible** by a second number if the second number divides into the first with no remainder. Here are some rules.

Last Digit of a Number	The Number Is Divisible by	Examples
any	1	any number
0, 2, 4, 6, 8	2	10; 24; 32; 54; 106; 138
0, 5	5	10; 25; 70; 915; 1,250
0	10	10; 20; 90; 500; 4,300

The Sum of the Digits	The Number Is Divisible by	Examples	
is divisible by 3	3	$843 \rightarrow 8 + 4 + 3 = 15$ and $15 \div 3 = 5$	$\begin{array}{r} 281 \text{ R0} \\ 3\overline{)843} \end{array}$
is divisible by 9	9	$2{,}898 \rightarrow 2 + 8 + 9 + 8 = 27$ and $27 \div 9 = 3$	$\begin{array}{r} 322 \text{ R0} \\ 9\overline{)2{,}898} \end{array}$

Circle the numbers in each row that are divisible by the number at the left.

1. 2   8   15   26   42   97   105   218

2. 5   14   10   25   18   975   1,005   2,340

3. 10   100   75   23   60   99   250   655

4. 3   51   75   12   82   93   153   274

5. 9   27   32   36   108   126   245   387

Use mental math to determine if the first number is divisible by the second.

6. 185; 5 _____

7. 76,870; 10 _____

8. 456; 3 _____

9. 35,994; 2 _____

10. 12,866; 9 _____

11. 151,002; 9 _____

12. 6,888; 2 _____

13. 31,067; 5 _____

14. 901,204; 3 _____

15. 2,232; 3 _____

16. 45,812; 9 _____

17. 3,090; 10 _____

18. 312; 9 _____

19. 1,933; 3 _____

20. 28,889; 2 _____

Test each number for being divisible by 2, 5, or 10. Some numbers may be divisible by more than one number.

21. 800 _____

22. 65 _____

23. 1,010 _____

Name _____ Class _____ Date _____

Practice 4-1

Divisibility and Mental Math

Is the first number divisible by the second? Use mental math.

1. 475 by 5 _____

2. 5,296 by 3 _____

3. 843 by 2 _____

4. 456,790 by 5 _____

5. 3,460 by 2 _____

6. 4,197 by 3 _____

Test each number for divisibility by 2, 3, 5, 9, or 10.

7. 126

8. 257

9. 430

10. 535

_____

_____

_____

_____

11. 745

12. 896

13. 729

14. 945

_____

_____

_____

_____

15. 4,580

16. 6,331

17. 7,952

18. 8,000

_____

_____

_____

_____

19. 19,450

20. 21,789

21. 43,785

22. 28,751

_____

_____

_____

_____

Find the digit that makes each number divisible by 9.

23. 54,78☐

24. 42,☐97

25. 83,2☐4

Name the numbers that are divisible by the numbers given.

26. numbers between 10 and 20, divisible by 2, 3, and 9

_____

27. numbers between 590 and 610, divisible by 2, 3, 5, and 10

_____

28. There are 159 students to be grouped into relay teams. Each team is to have the same number of students. Can each team have 3, 5, or 6 students?

_____

Name _____ Class _____ Date _____

Reteaching 4-3

Prime Numbers and Prime Factorization

A *prime number* has exactly two factors, the number itself and 1.

$$5 \times 1 = 5$$
5 is a prime number.

A *composite number* has more than two factors.
$$1 \times 6 = 6$$
$$2 \times 3 = 6$$

1, 2, 3, and 6 are factors of 6.
6 is a composite number.

The number 1 is neither prime nor composite.

Every composite number can be written as a product of prime numbers.

$$6 = 2 \times 3$$
$$8 = 2 \times 2 \times 2$$
$$12 = 2 \times 2 \times 3$$

Factors that are prime numbers are called *prime factors*. You can use a *factor tree* to find prime factors. This one shows the prime factors of 50.
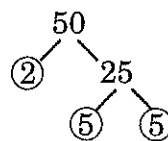
$50 = 2 \times 5 \times 5$ is the *prime factorization* of 50.

Tell whether each number is prime or composite. Explain.

1. 21

2. 43

3. 53

4. 74

_____

5. 54

6. 101

7. 67

8. 138

_____

9. 83

10. 95

11. 41

12. 57

_____

Complete each factor tree.

13.

14.

15.
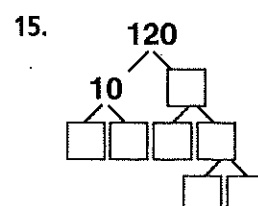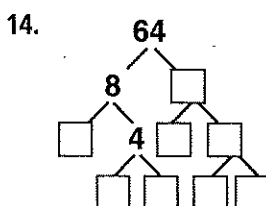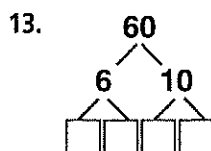
Find the prime factorization of each number.

16. 21

17. 48

18. 81

_____

19. 63

20. 100

21. 103

_____

Name _____ Class _____ Date _____

Practice 4-3

Prime Numbers and Prime Factorization

1. Make a list of all the prime numbers from 50 through 75 _____

Tell whether each number is prime or composite.

2. 53   3. 86   4. 95   5. 17

_____   _____   _____   _____

6. 24   7. 27   8. 31   9. 51

_____   _____   _____   _____

10. 103   11. 47   12. 93   13. 56

_____   _____   _____   _____

Complete each factor tree.

14. 28

15. 75

16. 84
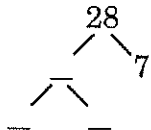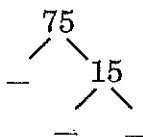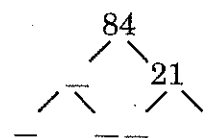
Find the prime factorization of each number.

17. 58   18. 72

_____   _____

19. 40   20. 30

_____   _____

21. 144   22. 310

_____   _____

Find the number with the given prime factorization.

23. $2 \times 2 \times 5 \times 7 \times 11$ 24. $2 \times 3 \times 5 \times 7 \times 11$

_____   _____

25. $2 \times 2 \times 13 \times 17$ 26. $7 \times 11 \times 13 \times 17$

_____   _____

27. There are 32 students in a class. How many ways can the class be divided into groups with equal numbers of students? What are they?

_____

Name _____ Class _____ Date _____

Reteaching 4-4

Greatest Common Factor

You can find the *greatest common factor (GCF)* of 12 and 18 using a division ladder, factor trees, or by listing the factors. Two of these methods are shown.

① List the factors of 12 and 18.

    12: 1, 2, 3, 4, 6, 12
    18: 1, 2, 3, 6, 9, 18

② Find the common factors.

    12: ①,②,③, 4,⑥, 12
    18: ①,②,③,⑥, 9, 18

    The common factors are 1, 2, 3, and 6.

③ Name the greatest common factor: 6.

① Draw factor trees.
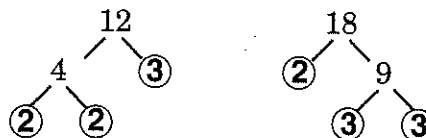
② Write each prime factorization. Identify common factors.

    12: ②× 2 ×③
    18: ②×③× 3

③ Multiply the common factors. $2 \times 3 = 6$. The GCF of 12 and 18 is 6.

List the factors to find the GCF of each set of numbers.

1. 10: _____
    15: _____
    GCF: _____

2. 14: _____
    21: _____
    GCF: _____

3. 9: _____
    21: _____
    GCF: _____

4. 12: _____
    13: _____
    GCF: _____

5. 15: _____
    25: _____
    GCF: _____

6. 15: _____
    18: _____
    GCF: _____

7. 36: _____
    48: _____
    GCF: _____

8. 24: _____
    30: _____
    GCF: _____

Find the GCF of each set of numbers.

9. 21, 60 _____

10. 15, 45 _____

11. 54, 60 _____

12. 20, 50 _____

13. 36, 40 _____

14. 48, 72 _____

Practice 4-4

Greatest Common Factor

List the factors to find the GCF of each set of numbers.

1. 8, 12   **2.** 18, 27   **3.** 15, 23   **4.** 17, 34

_____   _____   _____   _____

5. 24, 12   **6.** 18, 24   **7.** 5, 25   **8.** 20, 25

_____   _____   _____   _____

Use a division ladder to find the GCF of each set of numbers.

9. 10, 15   **10.** 25, 75   **11.** 14, 21   **12.** 18, 57

_____   _____   _____   _____

13. 32, 24, 40   **14.** 25, 60, 75   **15.** 12, 35, 15   **16.** 15, 35, 20

_____   _____   _____   _____

Use factor trees to find the GCF of each set of numbers.

17. 28, 24   **18.** 27, 36   **19.** 15, 305

_____   _____   _____

20. 57, 27   **21.** 24, 48   **22.** 56, 35

_____   _____   _____

23. 75, 200   **24.** 90, 160   **25.** 72, 108

_____   _____   _____

Solve.

26. The GCF of two numbers is 850. Neither number is divisible by the other. What is the smallest that these two numbers could be?

_____

27. The GCF of two numbers is 479. One number is even and the other number is odd. Neither number is divisible by the other. What is the smallest that these two numbers could be?

_____

Reteaching 4-7

Least Common Multiple

Find the *least common multiple (LCM)* of 8 and 12.

(1) Begin listing multiples of each number.

8: 8, 16, 24, 32, 40

12: 12, 24

(2) Continue the lists until you find the first multiple that is common to both lists. That is the LCM.

The least common multiple of 8 and 12 is 24.

List multiples to find the LCM of each pair of numbers.

1. 4: _____

   5: _____

   LCM: _____

2. 6: _____

   7: _____

   LCM: _____

3. 9: _____

   15: _____

   LCM: _____

4. 10: _____

   25: _____

   LCM: _____

5. 8: _____

   24: _____

   LCM: _____

6. 8: _____

   12: _____

   LCM: _____

7. 4: _____

   7: _____

   LCM: _____

8. 15: _____

   25: _____

   LCM: _____

Use prime factorization to find the LCM of each set of numbers.

9. 9, 21 _____

10. 6, 8 _____

11. 18, 24 _____

12. 40, 50 _____

Practice 4-7

Least Common Multiple

List multiples to find the LCM of each set of numbers.

1. 5, 10

2. 2, 3

3. 6, 8

4. 8, 10

5. 5, 6

6. 12, 15

7. 9, 15

8. 6, 15

9. 6, 9

10. 3, 5

11. 4, 5

12. 9, 21

13. 4, 6, 8

14. 6, 8, 12

15. 4, 9, 12

16. 6, 12, 15

17. 8, 12, 15

18. 2, 4, 5

Use prime factorizations to find the LCM of each set of numbers.

19. 18, 21

20. 15, 21

21. 18, 24

22. 15, 30

23. 24, 30

24. 24, 72

25. 8, 42

26. 16, 42

27. 8, 56

28. 8, 30

29. 16, 30

30. 18, 30

31. 12, 24, 16

32. 8, 16, 20

33. 12, 16, 20

34. At a store, hot dogs come in packages of eight and hot dog buns come in packages of twelve. What is the least number of packages of each type that you can buy and have no hot dogs or buns left over?

_____

Chapters 1–4 Answers (continued)

5.	3	Addresses as many of the "rules" as possible, given the route number; addresses the issue of north to south or east to west along with at least one other element; good explanation
	2	Correct information; poorly organized explanation OR strong explanation with some inaccuracies or omissions
	1	Inaccurate information with some explanation OR weak explanation
	0	No response
Excursion	5	Creative, interesting presentation of clearly described situation; clearly defined rules
	4	Clear presentation; clearly defined rules
	3	Incomplete presentation; clearly defined rules OR good presentation; vaguely defined rules
	2	Weak presentation; some rules
	1	Response related to numbering; no rules
	0	No response OR other response

Chapter 3 Cumulative Review

1. D **2.** J **3.** C **4.** J **5.** C **6.** H **7.** A **8.** G **9.** B **10.** J
11. B **12.** J **13.** C **14.** J **15.** D **16.** H **17.** C **18.** H
19. A **20.** $x + 4 = 6$ **21.** 4; 5; 13; check students'
explanations.

Chapter 4

Practice (regular) 4-1

1. yes **2.** no **3.** no **4.** yes **5.** yes **6.** yes **7.** 2, 3, 9 **8.** none
9. 2, 5, 10 **10.** 5 **11.** 5 **12.** 2 **13.** 3, 9 **14.** 3, 5, 9 **15.** 2, 5, 10
16. none **17.** 2 **18.** 2, 5, 10 **19.** 2, 5, 10 **20.** 3, 9 **21.** 3, 5, 9
22. none **23.** 3 **24.** 5 **25.** 1 **26.** 18 **27.** 600 **28.** 3 students

Guided Problem Solving 4-1

1. Determine if the bill can be divided into 9 equal shares.
2. the divisibility rule for 9 **3.** If the sum of the digits of a
number is divisible by 9, then the number is divisible by 9.
4. $56.61 **5.** 5, 6, 6, and 1 **6.** 18 **7.** yes **8.** yes
9. Divide $56.61 by 9 to see if it divides evenly.
10. $1 + 3 + 7 = 11$; 11 is not divisible by 3; no

Practice (adapted) 4-1

1. yes **2.** no **3.** no **4.** yes **5.** yes **6.** yes **7.** 2, 3, 9 **8.** none
9. 2, 5, 10 **10.** 5 **11.** 5 **12.** 2 **13.** 3, 9 **14.** 3, 5, 9 **15.** 2, 5, 10
16. none **17.** 2 **18.** 2, 5, 10 **19.** 3 **20.** 5 **21.** 1 **22.** 18
23. 3 students

Activity Lab 4-1

1–2. Check students' work. **3.** Yellow: 2, 4, 6, 8, 10, 12, 14, 16,
18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40; Red: 3, 6, 9, 12, 15, 18,
21, 24, 27, 30, 33, 36, 39; Blue: 5, 10, 15, 20, 25, 30, 35, 40; Purple:
9, 18, 27, 36; Green: 10, 20, 30, 40 **4a.** Sample answer: 2, 3, 5, 7,
11, 13, 17 **4b.** 18, 20, 30, 36, 40 **4c.** Check students' work.

Reteaching 4-1

1. 8; 26; 42; 218 **2.** 10; 25; 975; 1,005; 2,340 **3.** 100; 60; 250
4. 51; 75; 12; 93; 153 **5.** 27; 36; 108; 126; 387 **6.** yes **7.** yes
8. yes **9.** yes **10.** no **11.** yes **12.** yes **13.** no **14.** no **15.** yes
16. no **17.** yes **18.** no **19.** no **20.** no **21.** 2, 5, 10 **22.** 5
23. 2, 5, 10

Enrichment 4-1

1a. yes **1b.** yes **1c.** no **1d.** yes **1e.** no **1f.** yes **2.** 108, 212,
316, 1,020 **3.** Sample answer: change 108 to 208. The new
number is still divisible by four since there is no remainder
when divided by 4. **4.** The number formed by the last two
digits is divisible by 4. **5.** If the number formed by the last two
digits of a given number is divisible by 4, then the number is
divisible by 4. **6a.** no **6b.** yes **6c.** yes **6d.** yes **6e.** yes
6f. yes **7a.** yes **7b.** no; 29 is not divisible by 4

Puzzle 4-1

CHC; KEY; LIM; CAR;
CHARITY

Practice (regular) 4-2

1. 3^4; 3 is the base, 4 is the exponent **2.** 7^6; 7 is the base, 6 is
the exponent **3.** 9^3; 9 is the base, 3 is the exponent
4. $9 \times 10^4 + 8 \times 10^3 + 3 \times 10^2 + 6 \times 10^1 + 4 \times 1$
5. $2 \times 10^7 + 3 \times 10^5 + 5 \times 10^4 + 1 \times 10^3 + 4 \times 10^2 + 1 \times 1$
6. $8 \times 10^5 + 7 \times 10^4 + 5 \times 10^3 + 2 \times 10^1$ **7.** 81 **8.** 1,296
9. 125 **10.** 160 **11.** 104 **12.** 61 **13.** 144 **14.** 15 **15.** 206
16. 60 **17.** 600 **18.** 53 **19.** 35 **20.** 50 **21.** 120 **22.** 21
23. 512 **24.** 804 **25.** 145 **26.** 246 **27.** 86

Guided Problem Solving 4-2

1. Determine how many cells there will be after 8 hours. **2.** It
means the number is multiplied by itself the number of times shown
in the exponent. **3.** 2^3 cells **4.** 2^4 cells **5.** 2^6 cells **6.** 2^8 cells
7. because the number of cells doubled eight times **8.** 3^4 organisms

Practice (adapted) 4-2

1. 3^4; 3 is the base, 4 is the exponent **2.** 7^6; 7 is the base, 6 is
the exponent **3.** 9^3; 9 is the base, 3 is the exponent
4. $9 \times 10^4 + 8 \times 10^3 + 3 \times 10^2 + 6 \times 10^1 + 4 \times 1$
5. $2 \times 10^7 + 3 \times 10^5 + 5 \times 10^4 + 1 \times 10^3 + 4 \times 10^2 + 1 \times 1$
6. $8 \times 10^5 + 7 \times 10^4 + 5 \times 10^3 + 2 \times 10^1$ **7.** 81 **8.** 1,296
9. 125 **10.** 160 **11.** 104 **12.** 61 **13.** 144 **14.** 15 **15.** 206

Chapters 1–4 Answers (continued)

16. 60 **17.** 600 **18.** 53 **19.** 35 **20.** 50 **21.** 120 **22.** 21

8 groups of 4, 16 groups of 2

Activity Lab 4-2

1. 4; 8; 16; 9; 27; 81; 16; 64; 256 **2.** 216; 216 **3.** 256; 256
4. 5; 16,807 **5a.** I would choose the ▥ key because it is faster.
5b. 1,024 **5c.** 2, ▥, 10, ▤

Reteaching 4-2

1. 3; 6 **2.** 6; 2 **3.** 8; 4 **4.** 9^3; 9; 3 **5.** 6^4; 6; 4 **6.** 1^5; 1; 5 **7.** 36
8. 243 **9.** 10,000 **10.** 41 **11.** 4 **12.** 52 **13.** 28 **14.** 22 **15.** 14
16. 4 **17.** 50 **18.** 14

Enrichment 4-2

1. Sample answer: Exponent increases by 1; value doubles;
ones digits: 2, 4, 8, 6, 2, 4, 8, 6… **2.** 2^{11}; 2,048, 2^{12}; 4,096
3. $3^1 = 3, 3^2 = 9, 3^3 = 27, 3^4 = 81, 3^5 = 243, 3^6 = 729, 3^7 = 2,187, 3^8 = 6,561, 3^9 = 19,683, 3^{10} = 59,049.$ Sample answer:
Exponent increases by 1; number in standard form triples; ones
digits form pattern: 3, 9, 7, 1, 3, 9, 7, 1,… **4.** No; the last digits of
the powers of 2 form the pattern: 2, 4, 8, 6, 2, 4, 8,… **5.** about
300,000 km/sec

Puzzle 4-2

1. 2^2 **2.** 5^2 **3.** 3^1 **4.** 7^3 **5.** 3^4 **6.** 8^2

Practice (regular) 4-3

1. 53, 59, 61, 67, 71, 73 **2.** prime **3.** composite **4.** composite
5. prime **6.** composite **7.** composite **8.** prime **9.** composite
10. prime **11.** prime **12.** composite **13.** composite
14–16. Sample answers are given. **14.** 4; 2; 2 **15.** 5; 3; 5
16. 4; 2; 2; 3; 7 **17.** 2×29 **18.** $2 \times 2 \times 2 \times 3 \times 3$
19. $2 \times 2 \times 2 \times 5$ **20.** $2 \times 3 \times 5$ **21.** $2 \times 2 \times 2 \times 2 \times 3 \times 3$
22. $2 \times 5 \times 31$ **23.** 1,540 **24.** 2,310 **25.** 884 **26.** 17,017
27. four ways; 2 groups of 16; 4 groups of 8; 8 groups of 4, 16 groups of 2

Guided Problem Solving 4-3

1. Determine how many rows of guards are possible, and how
many guards will be in each row. **2.** the factors of 36 **3.** 9
4. 1, 2, 3, 4, 6, 9, 12, 18, 36 **5.** 1, 2, 3, 4, 6, 9, 12, 18, 36 **6.** 36, 18, 12, 9, 6, 4, 3, 2, 1 **7.** The row length times the number of people in each row should be 36. **8.** 1, 2, 3, 5, 6, 10, 15, 30; 30, 15, 10, 6, 5, 3, 2, 1

Practice (adapted) 4-3

1. prime **2.** composite **3.** composite **4.** composite
5. composite **6.** composite **7.** prime **8.** prime **9.** prime
10. composite **11–13.** Sample answers are given. **11.** 4; 2; 2
12. 5; 3; 5 **13.** 4; 2; 2; 3; 7 **14.** 2×29 **15.** $2 \times 2 \times 2 \times 3 \times 3$
16. $2 \times 2 \times 2 \times 5$ **17.** $2 \times 3 \times 5$ **18.** 1,540 **19.** 2,310
20. 884 **21.** 17,017 **22.** four ways; 2 groups of 16; 4 groups of 8;

Activity Lab 4-3

1. Sample answers are given.

Number	Sum of two odd primes	Sum of three primes
6	3 + 3	2 + 2 + 2
8	3 + 5	2 + 3 + 3
14	3 + 11	2 + 5 + 7
30	7 + 23	2 + 5 + 23
38	7 + 31	2 + 5 + 31
40	3 + 37	2 + 7 + 31
50	13 + 37	2 + 7 + 41
88	5 + 83	2 + 3 + 83
100	3 + 97	2 + 19 + 79
116	3 + 113	2 + 5 + 109
132	5 + 127	2 + 3 + 127
150	11 + 139	2 + 11 + 137
152	3 + 149	2 + 13 + 137

2–4. Check students' work.

Reteaching 4-3

1. composite **2.** prime **3.** prime **4.** composite **5.** composite
6. prime **7.** prime **8.** composite **9.** prime **10.** composite
11. prime **12.** composite
13. 60 **14.** 64 **15.** 120
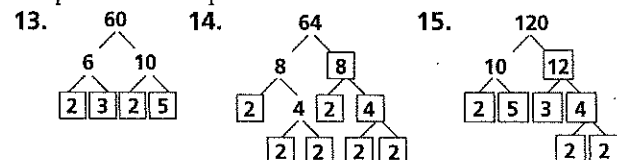
16. 3×7 **17.** $2 \times 2 \times 2 \times 2 \times 3$ **18.** $3 \times 3 \times 3 \times 3$
19. $3 \times 3 \times 7$ **20.** $2 \times 2 \times 5 \times 5$ **21.** 103

Enrichment 4-3

1. $2^3 \times 3^2 \times 7$ **2.** 2, 3, 3, 2, 7 **3–7.** Check students' work.

Puzzle 4-3

1. $5 \cdot 11$ **2.** $2 \cdot 3 \cdot 5$ **3.** $3 \cdot 31$ **4.** $2 \cdot 3 \cdot 17$ **5.** $2 \cdot 5 \cdot 13$
EGYPTIANS

Practice (regular) 4-4

1. 4 **2.** 9 **3.** 1 **4.** 17 **5.** 12 **6.** 6 **7.** 5 **8.** 5 **9.** 5 **10.** 25 **11.** 7
12. 3 **13.** 8 **14.** 5 **15.** 1 **16.** 5 **17.** 4 **18.** 9 **19.** 5 **20.** 3
21. 24 **22.** 7 **23.** 25 **24.** 10 **25.** 36 **26.** 1,700 and 2,550
27. 958 and 1,437

Guided Problem Solving 4-4

1. Each person gets the same number of baseball cards.
2. 20 cards **3.** No; the sum of the digits is not divisible by 3.
4. 23 cards **5.** 27 cards **6.** 27 **7.** Brands B and C **8.** Brand B
and C have 27 cards, which is divisible by 3. **9.** 5 rows of 9 drill

Chapters 1–4 Answers (continued)

team students and 5 rows of 5 color guard students

Practice (adapted) 4-4

1. 4 **2.** 9 **3.** 1 **4.** 12 **6.** 6 **7.** 5 **8.** 25 **9.** 7 **10.** 8 **11.** 5 **12.** 1
13. 4 **14.** 9 **15.** 5 **16.** 3 **17.** 24 **18.** 7 **19.** 1,700 and 2,550
20. 958 and 1,437

Activity Lab 4-4

1. 12 centerpieces; 3 carnations, 2 roses, 4 tulips
2. 6 centerpieces; 6 carnations; 4 roses, 8 tulips, 5 daisies
3. 2 centerpieces; 18 carnations, 12 roses, 20 tulips, 15 daisies
4. 9 bouquets; 3 red, 4 blue, 6 green **5.** 9 bouquets; 3 red, 4
blue, 6 green, 12 yellow **6.** 9 bouquets; 3 red, 4 blue, 6 green,
10 yellow

Reteaching 4-4

1. 1, 2, 5, 10; 1, 3, 5, 15; 5 **2.** 1, 2, 7, 14; 1, 3, 7, 21; 7 **3.** 1, 3, 9; 1,
3, 7, 21; 3 **4.** 1, 2, 3, 4, 6, 12; 1, 13; 1 **5.** 1, 3, 5, 15; 1, 5, 25; 5
6. 1, 3, 5, 15; 1, 2, 3, 6, 9, 18; 3 **7.** 1, 2, 3, 4, 6, 9, 12, 18, 36; 1, 2, 3,
4, 6, 8, 12, 16, 24, 48; 12 **8.** 1, 2, 3, 4, 6, 8, 12, 24; 1, 2, 3, 5, 6, 10,
15, 30; 6 **9.** 3 **10.** 15 **11.** 6 **12.** 10 **13.** 4 **14.** 24

Enrichment 4-4

1. 12 and 18 **2.** 24 and 56 **3.** 8, 16, and 24 **4.** 9 and 54, 18 and
45, 27 and 36 **5.** 5, 15, and 25; 5, 10 and 30; 10, 15, and 20
6. Check students' answers.

Puzzle 4-4

1. 3 **2.** 12 **3.** 30 **4.** 4 **5.** 14 **6.** 15 **7.** 21 **8.** 9

Practice (regular) 4-5

1. $\frac{1}{3}; \frac{4}{12}$; yes **2.** $\frac{1}{2}; \frac{3}{5}$; no **3.** $\frac{3}{4}; \frac{6}{10}$; no **4.** 2 **5.** 5 **6.** 6 **7.** 3 **8.** 2
9. 10 **10.** 15 **11.** 25 **12–19.** Sample answers are given.
12. $\frac{6}{20}, \frac{9}{30}$ **13.** $\frac{14}{16}, \frac{21}{24}$ **14.** $\frac{10}{12}, \frac{15}{18}$ **15.** $\frac{9}{12}, \frac{15}{20}$ **16.** $\frac{3}{4}, \frac{6}{8}$ **17.** $\frac{2}{3}, \frac{4}{6}$
18. $\frac{1}{3}; \frac{3}{9}$ **19.** $\frac{1}{4}; \frac{3}{12}$ **20.** no; $\frac{2}{7}$ **21.** no; $\frac{2}{5}$ **22.** yes **23.** no; $\frac{17}{18}$
24. no; $\frac{1}{3}$ **25.** no; $\frac{5}{8}$ **26.** no; $\frac{1}{2}$ **27.** yes **28.** no; $\frac{17}{22}$ **29.** $\frac{4}{5}$ **30.** $\frac{1}{4}$

Guided Problem Solving 4-5

1. Explain why the engineers wrote the driving time differently.
2. They are the same. **3.** Sample answers: seconds, minutes,
hours, days, weeks, months, years **4.** minutes **5.** hours **6.** One
engineer wrote the time in minutes and the other wrote it in
hours. **7.** Sample answer: Minutes and hours are reasonable
units when talking about driving time between two towns.
8. 15 minutes

Practice (adapted) 4-5

1. $\frac{1}{3}; \frac{4}{12}$; yes **2.** $\frac{1}{2}; \frac{3}{5}$; no **3.** $\frac{3}{4}; \frac{6}{10}$; no **4.** 2 **5.** 5 **6.** 6 **7.** 2 **8.** 10

9. 15 **10–15.** Sample answers are given. **10.** $\frac{6}{20}; \frac{9}{30}$ **11.** $\frac{14}{16}; \frac{21}{24}$
12. $\frac{10}{12}; \frac{15}{18}$ **13.** $\frac{3}{4}; \frac{6}{8}$ **14.** $\frac{2}{3}; \frac{4}{6}$ **15.** $\frac{1}{3}; \frac{3}{9}$ **16.** no; $\frac{3}{7}$ **17.** no; $\frac{2}{5}$
18. no; $\frac{17}{18}$ **19.** no; $\frac{1}{2}$ **20.** no; $\frac{1}{2}$ **21.** yes **22.** $\frac{4}{5}$

Activity Lab 4-5

1. Check students' work. **2.** $\frac{1}{4}$ **3.** $\frac{1}{4}$ unit **4a.** $\frac{1}{2}$ **4b.** $\frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$
5. $C = \frac{1}{16}$ unit; Area of piece $D = \frac{1}{32}$ unit **6a.** $E = 2C$
6b. $E = \frac{1}{8}$ unit **7a.** $\frac{5}{32}$ unit **7b.** $F = D + 2C = \frac{5}{32}$ unit
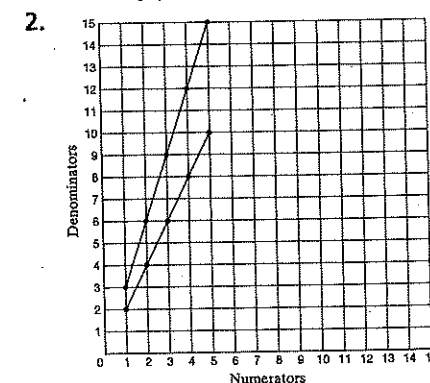**8.** Check that the sum of the areas of the pieces is 1.

Reteaching 4-5

1–6. Sample answers are given. **1.** $\frac{10}{12}; \frac{15}{18}$ **2.** $\frac{6}{14}; \frac{9}{21}$ **3.** $\frac{14}{16}; \frac{28}{32}$
4. $\frac{6}{22}; \frac{9}{33}$ **5.** $\frac{6}{12}; \frac{1}{2}$ **6.** $\frac{2}{10}; \frac{5}{25}$ **7.** no; $\frac{4}{5}$ **8.** yes **9.** yes **10.** no; $\frac{7}{15}$
11. $\frac{1}{2}$ **12.** $\frac{1}{20}$ **13.** $\frac{7}{8}$ **14.** $\frac{1}{3}$ **15.** $\frac{13}{17}$ **16.** $\frac{3}{4}$ **17.** $\frac{1}{7}$ **18.** $\frac{2}{3}$ **19.** $\frac{2}{15}$
20. $\frac{7}{33}$

Enrichment 4-5

1–5. Sample answers are given.
1. Sample: $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}, \frac{5}{15}$
2.

3. Points form a line segment, and each point is one space right
and three spaces up from the prior point. **4.** Points will form a
line segment, and each point is one space right and two spaces
up from the prior point. **5.** Sample answer: $\frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$; Check
students' answers. **6.** The line segment for $\frac{1}{3}$ is steeper than the
line segment for $\frac{1}{2}$. The larger the denominator, the steeper the
line segment will be.

Puzzle 4-5

1. I **2.** J **3.** R **4.** U **5.** T **6.** P **7.** E
JUPITER

Practice (regular) 4-6

1. $2\frac{3}{4}$ **2.** $3\frac{5}{6}$ **3.** $4\frac{5}{8}$ **4.** $6\frac{2}{5}$ **5.** $\frac{15}{8}$ **6.** $\frac{11}{4}$ **7.** $\frac{22}{3}$ **8.** $\frac{15}{4}$ **9.** $\frac{17}{4}$ **10.** $\frac{35}{6}$
11. $\frac{19}{8}$ **12.** $\frac{39}{8}$ **13.** $\frac{13}{5}$ **14.** $\frac{47}{12}$ **15.** $\frac{31}{12}$ **16.** $\frac{79}{15}$ **17.** $7\frac{1}{2}$ **18.** $2\frac{2}{3}$

Chapters 1–4 Answers (continued)

19. $2\frac{1}{2}$ **20.** $1\frac{1}{10}$ **21.** $1\frac{1}{6}$ **22.** $1\frac{1}{8}$ **23.** $2\frac{1}{4}$ **24.** $1\frac{4}{9}$ **25.** $1\frac{2}{3}$ **26.** $3\frac{2}{5}$
27. $2\frac{5}{6}$ **28.** $2\frac{2}{5}$ **29.** $\frac{33}{6}$ **30.** $\frac{123}{12}$

Guided Problem Solving 4-6

1. two slices; 50 guests; 12 slices **2.** Write the number of melons as a mixed number; then find out how many whole melons are needed. **3.** 100 slices **4.** 12 slices **5.** division **6.** $8\frac{1}{3}$ melons
7. 9 melons **8.** Parts of melons are not usually sold in bulk.
9. $6\frac{11}{16}$; 7 buses

Practice (adapted) 4-6

1. $2\frac{3}{4}$ **2.** $3\frac{5}{6}$ **3.** $4\frac{5}{8}$ **4.** $\frac{15}{8}$ **5.** $\frac{11}{4}$ **6.** $\frac{22}{3}$ **7.** $\frac{15}{4}$ **8.** $\frac{17}{4}$ **9.** $\frac{35}{6}$ **10.** $\frac{19}{8}$
11. $\frac{39}{8}$ **12.** $\frac{13}{5}$ **13.** $7\frac{1}{2}$ **14.** $2\frac{4}{9}$ **15.** $2\frac{1}{2}$ **16.** $1\frac{1}{10}$ **17.** $1\frac{1}{6}$ **18.** $1\frac{1}{8}$
19. $2\frac{1}{4}$ **20.** $1\frac{4}{9}$ **21.** $1\frac{2}{3}$ **22.** $\frac{33}{6}$

Activity Lab 4-6

1. $\frac{27}{4}$ **2.** $5\frac{3}{7}$ **3.** $\frac{58}{7}$ **4.** $3\frac{9}{11}$ **5.** $\frac{227}{16}$ **6.** $1\frac{13}{43}$ **7.** $\frac{262}{11}$ **8.** $1\frac{29}{31}$
9. $\frac{1,247}{34}$ **10.** $10\frac{3}{8}$ **11.** $\frac{2,325}{44}$ **12.** $18\frac{4}{5}$ **13.** $\frac{3,187}{67}$ **14.** $2\frac{55}{64}$
15. $\frac{10,896}{47}$ **16.** $462\frac{4}{5}$

Reteaching 4-6

1. $\frac{16}{7}$ **2.** $\frac{23}{4}$ **3.** $\frac{53}{8}$ **4.** $\frac{34}{10}$ **5.** $\frac{28}{3}$ **6.** $\frac{24}{5}$ **7.** $\frac{27}{8}$ **8.** $\frac{17}{7}$ **9.** $\frac{49}{6}$
10–15. Check students' work. **16.** $1\frac{1}{8}$ **17.** $3\frac{1}{2}$ **18.** $2\frac{2}{3}$
19. $1\frac{3}{4}$ **20.** $6\frac{2}{3}$ **21.** $3\frac{2}{5}$ **22.** $1\frac{4}{5}$ **23.** $3\frac{5}{8}$ **24.** $2\frac{2}{3}$

Enrichment 4-6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Titus														X	
Ferns							X							X	
Violets						X							X		
Herman				X					X				X		
Whiskers			X			X				X			X		X

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Titus													X		
Ferns						X							X		
Violets			X						X						X
Herman	X				X				X				X		
Whiskers			X			X			X			X			X

1. 14th and 28th **2.** once **3.** no **4.** 28 days **5.** 12th and 24th

Puzzle 4-6

✗	$\frac{11}{2}$	✗	$\frac{68}{7}$	$\frac{21}{7}$	$\frac{222}{21}$
$\frac{2}{2}$	$\frac{5}{2}$	$\frac{1}{2}$	✗	$\frac{78}{14}$	✗
$\frac{2}{3}$	$\frac{2}{1}$	✗	$\frac{370}{70}$	$\frac{14}{7}$	$\frac{74}{4}$
✗	$\frac{25}{8}$	$\frac{11}{3}$	✗	$\frac{22}{8}$	$\frac{11}{4}$
$\frac{50}{3}$	✗	✗	$\frac{63}{12}$	✗	$\frac{100}{25}$
$\frac{12}{3}$	✗	$\frac{31}{4}$	$\frac{50}{4}$	$\frac{10}{4}$	✗
$\frac{10}{8}$	✗	$\frac{18}{8}$	$\frac{20}{10}$	$\frac{10}{5}$	✗
$\frac{45}{8}$	$\frac{102}{16}$	$\frac{21}{8}$	✗	$\frac{68}{25}$	$\frac{51}{15}$
✗	$\frac{59}{3}$	✗	✗	$\frac{16}{5}$	$\frac{32}{5}$

Practice (regular) 4-7

1. 10 **2.** 6 **3.** 24 **4.** 40 **5.** 30 **6.** 60 **7.** 45 **8.** 30 **9.** 18 **10.** 15
11. 20 **12.** 63 **13.** 24 **14.** 24 **15.** 36 **16.** 60 **17.** 120 **18.** 20
19. 126 **20.** 105 **21.** 72 **22.** 30 **23.** 120 **24.** 72 **25.** 168
26. 336 **27.** 56 **28.** 120 **29.** 240 **30.** 90 **31.** 48 **32.** 80
33. 240 **34.** 3 packages of hot dogs, 2 packages of buns

Guided Problem Solving 4-7

1. fifteenth, fortieth **2.** Find which customer will be the first to get both a free CD and a free DVD. **3.** the 15th, 30th, 45th, 60th, 75th, 90th, 105th, 120th, 135th, 150th, etc. **4.** the 40th, 80th, 120th, 160th, 200th, etc. **5.** the 120th customer
6. The answer should be the LCM of 15 and 40. **7.** 30 days

Practice (adapted) 4-7

1. 10 **2.** 6 **3.** 24 **4.** 40 **5.** 30 **6.** 60 **7.** 45 **8.** 30 **9.** 18 **10.** 15
11. 20 **12.** 63 **13.** 126 **14.** 105 **15.** 72 **16.** 30 **17.** 120 **18.** 72
19. 168 **20.** 336 **21.** 56 **22.** 3 packages of hot dogs, 2 packages of buns

Activity Lab 4-7

1–2.

Numbers	LCM	GCF	Product of original numbers	Product of LCM and GCF
12, 15				
8, 24				
7, 12				
27, 36				

3. The values are equivalent; is equal to **4a.** 486 **4b.** 9 **4c.** 54
5. 120 **6.** 72 **7.** 100 **8.** 84

Chapters 1–4 Answers (continued)

Reteaching 4-7

1. 4, 8, 12, 16, 20; 5, 10, 15, 20; 20 **2.** 6, 12, 18, 24, 30, 36, 42; 7, 14, 21, 28, 35, 42; 42 **3.** 9, 18, 27, 36, 45; 15, 30, 45; 45 **4.** 10, 20, 30, 40, 50; 25, 50; 50 **5.** 8, 16, 24; 24; 24 **6.** 8, 16, 24; 12, 24; 24 **7.** 4, 8, 12, 16, 20, 24, 28; 7, 14, 21, 28; 28 **8.** 15, 30, 45, 60, 75; 25, 50, 75; 75 **9.** 63 **10.** 24 **11.** 72 **12.** 200

Enrichment 4-7

1. every 6 days **2.** January 7, January 13, January 19 **3.** every 12 days **4.** January 13 and January 25 **5.** every 10 days **6.** every 20 days **7.** every 60 days

Puzzle 4-7

1. 88 **2.** 65 **3.** 21 **4.** 63 **5.** 30 **6.** 12 **7.** 15 **8.** 36 **9.** 20 **10.** 24 **11.** 44 **12.** 42 **13.** 45 **14.** 84
The maximum number of game pieces in a Chinese checkers board is 60.

Practice (regular) 4-8

1. > **2.** = **3.** > **4.** > **5.** > **6.** = **7.** < **8.** < **9.** = **10.** > **11.** < **12.** = **13.** $\frac{5}{6}, \frac{9}{10}, \frac{14}{15}$ **14.** $1\frac{7}{12}, 1\frac{5}{6}, 1\frac{7}{8}$ **15.** $\frac{9}{10}, \frac{11}{12}, \frac{14}{15}$ **16.** $2\frac{1}{4}, 3\frac{5}{6}, 3\frac{7}{8}$ **17.** $\frac{7}{30}, \frac{2}{3}, \frac{11}{15}, \frac{4}{5}$ **18.** $1\frac{3}{4}, 2\frac{1}{10}, 2\frac{1}{6}, 3\frac{7}{8}$ **19.** $\frac{5}{12}, \frac{17}{30}, \frac{3}{5}$ **20.** $1\frac{11}{18}, 1\frac{5}{6}, 1\frac{11}{12}, 2\frac{1}{6}$ **21.** $\frac{17}{20}, 1\frac{18}{25}, 2\frac{31}{36}$ **22.** > **23.** > **24.** > **25.** < **26.** > **27.** > **28.** > **29.** > **30.** < **31.** $5\frac{1}{4}, 5\frac{5}{16}, 5\frac{3}{8}, 5\frac{5}{8}$

Guided Problem Solving 4-8

1. $12\frac{9}{20}$ ounces, $12\frac{7}{16}$ ounces **2.** Determine which drink is the better buy. **3.** which is larger **4.** 80 **5.** $\frac{36}{80}, \frac{35}{80}$ **6.** $\frac{36}{80}$ **7.** the $12\frac{9}{20}$-ounce drink **8.** Change both mixed numbers to decimals and compare them. **9.** Ana drove more miles because $\frac{1}{4} > \frac{1}{8}$.

Practice (adapted) 4-8

1. > **2.** = **3.** > **4.** > **5.** > **6.** = **7.** $\frac{5}{6}, \frac{9}{10}, \frac{14}{15}$ **8.** $1\frac{7}{12}, 1\frac{5}{6}, 1\frac{7}{8}$ **9.** $\frac{9}{10}, \frac{11}{12}, \frac{14}{15}$ **10.** $2\frac{1}{4}, 3\frac{5}{6}, 3\frac{7}{8}$ **11.** $\frac{7}{30}, \frac{2}{3}, \frac{11}{15}, \frac{4}{5}$ **12.** $1\frac{3}{4}, 2\frac{1}{10}, 2\frac{1}{6}, 3\frac{7}{8}$ **13.** > **14.** > **15.** > **16.** < **17.** > **18.** > **19.** > **20.** > **21.** < **22.** $5\frac{1}{4}, 5\frac{5}{16}, 5\frac{3}{8}, 5\frac{5}{8}$

Activity Lab 4-8

1. −9 **2.** −0.057 **3.** 0.0952 **4a.** 0 **4b.** They are equivalent fractions. **5.** > **6.** < **7.** < **8.** = **9.** > **10.** > **11.** > **12.** < **13.** = **14.** <

Reteaching 4-8

1. < **2.** < **3.** > **4.** = **5.** < **6.** = **7.** > **8.** < **9.** < **10.** $\frac{1}{2}, \frac{5}{8}, \frac{3}{4}$ **11.** $\frac{5}{8}, \frac{2}{3}, \frac{5}{6}$ **12.** $\frac{5}{12}, \frac{1}{2}, \frac{2}{3}$ **13.** $\frac{7}{12}, \frac{3}{5}, \frac{2}{3}$ **14.** $\frac{3}{8}, \frac{1}{2}, \frac{3}{5}$ **15.** $\frac{3}{4}, \frac{13}{16}, \frac{7}{8}$ **16.** Eugene; $1\frac{1}{9} = 1\frac{4}{36}; 1\frac{5}{12} = 1\frac{15}{36}; 1\frac{15}{36} > 1\frac{4}{36}$

Enrichment 4-8

1. Sample answer: $\frac{1}{3}$ of one pound of silver dollars. Even though there are fewer pounds, the value is greater. **2.** Sample answer: $\frac{1}{3}$ of two million dollars, $\frac{1}{3}$ of two million is about $666,667; \frac{1}{2}$ of one million is $500,000. **3.** Sample answer: $\frac{1}{6}$ of 12 dozen; $\frac{1}{6}$ of 12 is 2 which is greater than $\frac{1}{2}$ of 3, or $1\frac{1}{2}$. **4.** Check students' work.

Puzzle 4-8

1. Check students' work.

Practice (regular) 4-9

1. $0.72, \frac{18}{25}$ **2.** $0.9, \frac{9}{10}$ **3.** $0.04; \frac{1}{25}$ **4.** $\frac{3}{5}$ **5.** $1\frac{1}{4}$ **6.** $\frac{37}{50}$ **7.** $\frac{127}{200}$ **8.** $\frac{4}{5}$ **9.** $6\frac{4}{25}$ **10.** $\frac{129}{200}$ **11.** $\frac{391}{500}$ **12.** $\frac{493}{1,000}$ **13.** 1.25 **14.** 0.875 **15.** 0.5625 **16.** 0.125 **17.** 1.8 **18.** 0.09 **19.** 0.28 **20.** 0.06 **21.** 0.008 **22.** 2.75 **23.** $\frac{1}{3}, \frac{2}{3}, 0.5, 1.4$ **24.** $\frac{8}{20}, 2\frac{1}{5}, 2.25, 2.8$ **25.** $\frac{1}{3}, 0.4, \frac{4}{9}, 2.5$ **26.** $\frac{3}{5}, 0.65, 0.75, \frac{7}{8}$ **27.** true **28.** true **29.** false **30.** false **31.** true **32.** true

Guided Problem Solving 4-9

1. Write $1\frac{1}{4}$ as a decimal. **2.** one divided by 4 **3.** 1.0 **4.** 0.25 **5.** 1.25 **6.** 1.25 **7.** Write 1.25 as a mixed number and see if it is $1\frac{1}{4}$. **8.** 3.75 pounds

Practice (adapted) 4-9

1. $0.72, \frac{18}{25}$ **2.** $0.9, \frac{9}{10}$ **3.** $0.04; \frac{1}{25}$ **4.** $\frac{3}{5}$ **5.** $1\frac{1}{4}$ **6.** $\frac{37}{50}$ **7.** $\frac{127}{200}$ **8.** $\frac{4}{5}$ **9.** $6\frac{4}{25}$ **10.** 1.25 **11.** 0.875 **12.** 0.5625 **13.** 0.125 **14.** 1.8 **15.** 0.09 **16.** 2.75 **17.** $\frac{1}{3}, \frac{2}{3}, 0.5, 1.4$ **18.** $\frac{8}{20}, 2\frac{1}{5}, 2.25, 2.8$ **19.** $\frac{1}{3}, 0.4, \frac{4}{9}, 2.5$ **20.** true **21.** true **22.** false

Activity Lab 4-9

1. 0.466666... **2.** $\frac{21}{50}$ **3.** 0.8125 **4.** $\frac{97}{125}$ **5.** 42.3 **6.** 13.583333... **7.** 93.716666... **8.** 245.6666... **9.** $325\frac{13}{400}$

Reteaching 4-9

1. $\frac{4}{5}$ **2.** $\frac{11}{20}$ **3.** $1\frac{1}{4}$ **4.** $3\frac{3}{8}$ **5.** $\frac{1}{8}$ **6.** $1\frac{8}{25}$ **7.** $\frac{21}{250}$ **8.** $\frac{3}{500}$ **9.** $\frac{13}{20}$ **10.** 0.65 **11.** $0.1\overline{6}$ **12.** 0.35 **13.** 0.76 **14.** $0.\overline{4}$ **15.** $0.\overline{63}$ **16.** $1.\overline{2}$ **17.** 2.25 **18.** 0.04 **19.** less than **20.** equal to **21.** less than **22.** greater than **23.** greater than **24.** less than

Enrichment 4-9

1. 0.1111..., 0.09090909..., 0.2222..., 0.18181818..., 0.3333..., 0.27272727..., 0.4444..., 0.36363636..., 0.5555..., 0.45454545..., 0.6666..., 0.54545454..., 0.7777..., 0.63636363... **2.** Sample answer: The decimal is a repeating decimal. The repeating part of the decimal is the same as the numerator of the fraction.

Name _____ Class _____ Date _____

Reteaching 7-1

A *ratio* is a comparison of two numbers by division. Each number in a ratio is called a *term*. You can write a ratio in three different ways. For example, the ratio 4 to 5 can be written:

    4 to 5

    4 : 5

    $\frac{4}{5}$

Equal ratios name the same number. They have the same *simplest form*.

- To find equal ratios, multiply *or* divide both the numerator and denominator of a ratio by the same number.

Find a ratio equal to $\frac{4}{7}$.

$$\frac{4}{7} = \frac{4 \times 2}{7 \times 2} = \frac{8}{14}$$

$\frac{8}{14}$ is equal to $\frac{4}{7}$.

Find the simplest form for the ratio $\frac{16}{20}$.

$$\frac{16}{20} = \frac{16 \div 4}{20 \div 4} = \frac{4}{5}$$

$\frac{4}{5}$ is the simplest form for $\frac{16}{20}$.

Write three different ratios equal to each ratio.

1. $\frac{2}{5}$

2. 1 : 3

3. 3 to 4

4. 5 : 8

5. 2 to 7

6. $\frac{1}{5}$

7. 12 to 20

8. 6 : 16

Write each ratio in simplest form.

9. 32 : 16

10. $\frac{14}{24}$

11. $\frac{36}{50}$

12. 60 : 25

13. $\frac{25}{40}$

14. 60 : 180

15. $\frac{75}{120}$

16. 80 : 20

Find the value that makes the ratios equal.

17. 3 : 4, __?__ : 16

18. 20 to 25, 40 to __?__

19. 7 : 10, __?__ : 100

20. 1 to 8, __?__ to 24

21. 5 : 100, 25 : __?__

22. $\frac{7}{56}, \frac{?}{280}$

Reteaching 7-2

A *rate* is a ratio that compares quantities that are measured in different units. Suppose a sprinter runs 100 yards in 10 seconds.

$\dfrac{100 \text{ yd}}{10 \text{ s}}$ compares yards to seconds.

A *unit rate* compares a quantity to one unit of another quantity.

You can find the unit rate by dividing by the denominator.

$\dfrac{100 \text{ yd} \div 10}{10 \text{ s} \div 10} = \dfrac{10 \text{ yd}}{1 \text{ s}}$

10 yards per second is the sprinter's unit rate.

Find the unit price for each situation.

1. $70 for 10 shirts

2. $150 for 3 games

3. $20 for 5 toys

4. $120 for 6 shirts

5. $45 for 5 boxes

6. $132 for 3 books

7. $100 for 5 rackets

8. $56 for 7 hours

9. $1.98 for 6 cans

Write the unit rate as a ratio. Then find an equal ratio.

10. The cost is $4.25 for 1 item. Find the cost of 5 items.

11. There are 7 cheerleaders in a squad. Find the number of cheerleaders on 12 squads.

12. The cost if $10.10 for 1 item. Find the cost of 10 items.

13. There are 2.54 centimeters per one inch. Find the number of centimeters in 5 inches.

For Exercises 14–16, tell which unit rate is greater.

14. Dillan scores 24 points in 2 games. Eric scores 40 points in 4 games.

15. A fern grows 4 inches in 2 months. A tree grows 6 inches in 4 months.

16. Tyler jogs 4 miles in 32 minutes. Joey jogs 2 miles in 18 minutes.

Practice 7-2

Unit Rates

Find the unit rate for each situation.

1. 44 breaths in 2 minutes
2. 72 players on 9 teams

_____

3. 60 miles in 2 hours
4. 15 pages in 30 minutes

_____

5. 48 questions in 4 quizzes
6. $3 for 4 packages

_____

Write the unit rate as a ratio. Then find an equal ratio.

7. There are 12 inches in a foot. Find the number of inches in 6 feet.

_____

8. The cost is $8.50 for 1 shirt. Find the cost of 4 shirts.

_____

9. There are 365 days in a year. Find the number of days in 3 years.

_____

10. There are 6 cans per box. Find the number of cans in 11 boxes.

_____

11. There are 5 students in a group. Find the number of students in
5 groups.

_____

12. There are 70 pages in a notebook. Find the number of pages in
8 notebooks.

_____

Find each unit price.

13. $5 for 10 pounds _____
14. 40 ounces for $12 _____

15. $6 for 10 pens _____
16. $60 for 5 books _____

17. $27 for 3 shirts _____
18. $35 for 25 tapes _____

Chapters 5–8 Answers (continued)

Chapter 6 Alternative Assessment Scoring Rubric

Exercise	Points	Explanation
1.	1	60 people
	0	No answer OR incorrect answer
2.	1	$\frac{1}{8}$
	0	No answer or incorrect answer
3.	1	1 cup
	0	No answer or incorrect answer
4.	1	4 containers.
	0	No answer or incorrect answer
5.	1	$\frac{3}{4}$ cup
	0	No answer or incorrect answer
Excursion	4	The student demonstrates a clear understanding of multiplication and division with fractions. All calculations are accurate and complete. The student's letter is thorough, well organized, and easy to read.
	3	The student demonstrates a fundamental understanding of multiplication and division with fractions. The student does all necessary calculations but may make some minor errors. The student's letter is fairly well organized and easy to read but may contain minor computational errors.
	2	The student has some understanding of multiplication and division with fractions but requires assistance to apply this understanding to the given situation. One or more of the student's calculations contain major errors or omissions. The student requires some assistance to complete the letter.
	1	The student demonstrates little if any understanding of multiplication and division with fractions and cannot, even with assistance, apply this understanding to the given situation. The student attempts some calculations, but they are irrelevant or superfluous. The student requires a great deal of assistance to complete the letter.
	0	No response

Chapter 6 Cumulative Review

1. C 2. F 3. C 4. G 5. C 6. J 7. A 8. J 9. D 10. H
11. A 12. H 13. C 14. J 15. C 16. J 17. C 18. H 19. B
20. 6 21. 120

Chapter 7

Practice (regular) 7-1

1. $3:2; \frac{3}{2}$; 3 to 2 2. $5:7; \frac{5}{7}$; 5 to 7 3. $3:7; \frac{3}{7}$, 3 to 7 4. $7:3; \frac{7}{3}$; 7 to 3
5. $5:2; \frac{5}{2}$; 5 to 2 6. $2:3; \frac{2}{3}$; 2 to 3 7. $2:7; \frac{2}{7}$; 2 to 7 8. $3:5; \frac{3}{5}$; 3 to 5
9. $7:5; \frac{7}{5}$; 7 to 5 10. $\frac{6}{1}$ 11. $\frac{2}{3}$ 12. $\frac{3}{2}$ 13. $\frac{1}{4}$ 14. $\frac{4}{1}$ 15. $\frac{1}{6}$ 16. 5
17. 24 18. 17 19. 20 20. 23 21. 45 22. 8 23. 7 24. 3

Guided Problem Solving 7-1

1. Write the ratio of cat's teeth to dog's teeth in simplest form.
2. The numerator and denominator have no common factors other than one. 3. cat's teeth 4. 30 teeth 5. $\frac{30}{42}$ 6. 6 7. $\frac{5 \cdot 6}{7 \cdot 6}$
8. $\frac{5}{7}$ 9. Cat's; yes, because the numerator is smaller than the denominator. 10. $\frac{2}{3}$

Practice (adapted) 7-1

1. $3:2; \frac{3}{2}$; 3 to 2 2. $5:7; \frac{5}{7}$; 5 to 7 3. $3:7; \frac{3}{7}$; 3 to 7 4. $7:3; \frac{7}{3}$;
7 to 3 5. $5:2; \frac{5}{2}$; 5 to 2 6. $2:3; \frac{2}{3}$; 2 to 3 7. $\frac{6}{1}$ 8. $\frac{2}{3}$ 9. $\frac{3}{2}$ 10. $\frac{1}{4}$
11. 5 12. 24 13. 17 14. 20 15. 23 16. 45

Activity Lab 7-1

1–3, 5–6,

	January	February	March	April	May	June
Number of Quarters	7	14	28	56	168	504
Number of Pennies	35	70	140	280	840	2,520
Ratio of Quarters to Pennies	1:5	1:5	1:5	1:5	1:5	1:5

4. The ratios are equivalent. 7. Sample answer: All of the ratios are equivalent. Since the number of quarters and the number of pennies were always increased by the same factor, the ratios remained equivalent.

Reteaching 7-1

1–6. Sample answers are given. 1. $\frac{4}{10}, \frac{6}{15}, \frac{8}{20}$ 2. $\frac{2}{6}, \frac{3}{9}, \frac{4}{12}$
3. $\frac{6}{8}, \frac{9}{12}, \frac{15}{20}$ 4. $\frac{10}{16}, \frac{15}{24}, \frac{20}{32}$ 5. $\frac{4}{14}, \frac{6}{21}, \frac{8}{28}$ 6. $\frac{2}{10}, \frac{3}{15}, \frac{4}{20}$ 7. $\frac{24}{40}, \frac{36}{60}, \frac{48}{80}$
8. $\frac{12}{32}, \frac{18}{48}, \frac{24}{64}$ 9. 2:1 10. $\frac{7}{12}$ 11. $\frac{18}{25}$ 12. 12:5 13. $\frac{5}{8}$ 14. 1:3
15. $\frac{5}{8}$ 16. 4:1 17. 12 18. 50 19. 70 20. 3 21. 500 22. 35

Chapters 5–8 Answers (continued)

Enrichment 7-1

1. Sample answers are given: **1a.** right triangle **1b.** obtuse triangle **1c.** acute triangle **1d.** rectangle **1e.** rhombus **1f.** trapezoid   It is easiest to find how many of each type of triangle, then use those quantities to find the number of rectangles and other quadrilaterals. **2a.** 4 **2b.** 6 **2c.** 5 **2d.** 15 **2e.** 12 **2f.** 3 **2g.** 5 **2h.** 20 **3.** Sample answers are given: **3a.** 8 **3b.** 12 **3c.** 10 **3d.** 30 **3e.** 24 **3f.** 6 **3g.** 10 **3h.** 40

Puzzle 7-1

1. 10 : 99 **2.** 9 : 41 **3.** 28 : 48 **4.** 25 : 125 **5.** 2 : 20 **6.** 1 : 48 **7.** 9 : 24 **8.** 20 : 4 **9.** Check students' answers. **10.** 10 : 4 or 22 : 20

Practice (regular) 7-2

1. 22 breaths per minute **2.** 8 players per team **3.** 30 miles per hour **4.** $\frac{1}{2}$ page per minute **5.** 12 questions per quiz **6.** $.75 per package **7.** $\frac{12 \text{ in.}}{1 \text{ ft}} = \frac{72 \text{ in.}}{6 \text{ ft}}$ **8.** $\frac{\$8.50}{1 \text{ shirt}} = \frac{\$34}{4 \text{ shirts}}$ **9.** $\frac{365 \text{ days}}{1 \text{ year}} = \frac{1,095 \text{ days}}{3 \text{ years}}$ **10.** $\frac{6 \text{ cans}}{1 \text{ box}} = \frac{66 \text{ cans}}{11 \text{ boxes}}$ **11.** $\frac{5 \text{ students}}{1 \text{ group}} = \frac{25 \text{ students}}{5 \text{ groups}}$ **12.** $\frac{70 \text{ pages}}{1 \text{ notebook}} = \frac{560 \text{ pages}}{8 \text{ notebooks}}$ **13.** $.50/pound **14.** $.30/ounce **15.** $.60/pen **16.** $12/book **17.** $9/shirt **18.** $1.40/tape

Guided Problem Solving 7-2

1. Find Crystal's unit rate. Find the record-holder's unit rate. **2.** the rate for one unit of a given quantity **3.** 255 jumps in 3 minutes **4.** 85 jumps per minute **5.** 882 jumps in 3 minutes **6.** 294 jumps per minute **7.** 209 times **8.** The unit rate times 3 should equal the original rate. **9.** 48 sandwiches per hour

Practice (adapted) 7-2

1. 22 breaths per minute **2.** 8 players per team **3.** 30 miles per hour **4.** $\frac{1}{2}$ page per minute **5.** $\frac{12 \text{ in.}}{1 \text{ ft}} = \frac{72 \text{ in.}}{6 \text{ ft}}$ **6.** $\frac{\$8.50}{1 \text{ shirt}} = \frac{\$34}{4 \text{ shirts}}$ **7.** $\frac{365 \text{ days}}{1 \text{ year}} = \frac{1,095 \text{ days}}{3 \text{ years}}$ **8.** $\frac{6 \text{ cans}}{1 \text{ box}} = \frac{66 \text{ cans}}{11 \text{ boxes}}$ **9.** $\frac{5 \text{ students}}{1 \text{ group}} = \frac{25 \text{ students}}{5 \text{ groups}}$ **10.** $.50/pound **11.** $.30/ounce **12.** $.60/pen **13.** $12/book

Activity Lab 7-2

1a. $0.60 per orange **1b.** Sample answer: 12 oranges for $6 since the unit rate is 50¢ for 1 orange; the other unit rate is 60¢ for 1 orange. **2.** Sample answer: Enter 199, press ▉, enter 6, press ▉; enter 249, press ▉, enter 8, press ▉. **3a.** $2.67 for one box **3b.** $2.75 for one box **3c.** Possible answer: 3 boxes of cereal for $8.00 is the better buy since its unit rate is $2.67 per box, while the unit rate for the other is $2.75 per box.

Reteaching 7-2

1. $7/shirt **2.** $50/game **3.** $4/toy **4.** $20/shirt **5.** $9/box **6.** $44/book **7.** $20/racket **8.** $8/hour **9.** $0.33/can **10.** $21.25 **11.** 84 cheerleaders **12.** $101 **13.** 12.7 cm **14.** 24 points in 2 games **15.** 4 inches in 2 months **16.** 4 miles in 32 minutes

Enrichment 7-2

1a. about $4.10 per meal; about $12.29 per day **1b.** about $17.55 per day **2a.** about $15.37 per day **2b.** about $37.25 per day **2c.** Per day, the University of Colorado is least expensive. Sample answers: tuition, quality of housing, number of nights off campus, number of meals she may eat off campus. **3.** Find the cost per day of the meal plan and the cost of housing for Maryland. Add the two together. Then compare to the cost per day at Colorado. Colorado is still the least expensive.

Puzzle 7-2

0.04; 0.08; 0.06; 0.009; 0.039; 0.09

Practice (regular) 7-3

1. no **2.** no **3.** yes **4.** yes **5.** yes **6.** no **7.** no **8.** yes **9.** 12 **10.** 30 **11.** 14 **12.** 8 **13.** 28 **14.** 12 **15.** 4 **16.** 4 **17.** about 12,320 families **18.** 2,808 families **19.** Sample answer: 2,100,000 people

Guided Problem Solving 7-3

1. 2 cups; 3 dozen cookies; 3 cups; 60 cookies **2.** Determine whether 3 cups is enough flour for 60 cookies. **3.** 36 **4.** $\frac{2}{36}$ **5.** $\frac{3}{c}$ **6.** $\frac{2}{36} = \frac{3}{c}$ **7.** $c = 54$ **8.** 54 cookies **9.** No, because 54 is less than 60. **10.** $\frac{2}{36} = \frac{f}{60}, f = 3\frac{1}{3}; 3\frac{1}{3}$ cups; yes **11.** 32 servings

Practice (adapted) 7-3

1. no **2.** no **3.** yes **4.** yes **5.** yes **6.** no **7.** 12 **8.** 30 **9.** 14 **10.** 8 **11.** 28 **12.** 12 **13.** about 12,320 families **14.** 2,808 families

Activity Lab 7-3

1a. 36/36 **1b.** $\frac{18}{4}$ **2.** No; $\frac{3}{5} \div \frac{8}{25} \neq 1$. **3.** Yes. **4a.** 0 **4b.** Sample answer: Since the difference of the cross products is zero, the two ratios are proportional. **5a.** no **5b.** yes **6.** Check students' answers.

Reteaching 7-3

1. yes **2.** no **3.** no **4.** yes **5.** yes **6.** no **7.** no **8.** no **9.** yes **10.** 5 **11.** 8 **12.** 3 **13.** 10 **14.** 5 **15.** 7 **16.** 18 **17.** 5 **18.** 81 **19.** 4 times **20.** 4 miles

Reteaching 4-9

Fractions and Decimals

Example 1: Write 0.320 as a fraction in simplest form.

① Read.   "320 thousandths"

② Write. $\frac{320}{1,000}$

③ Simplify. $\frac{320}{1,000} = \frac{320 \div 40}{1,000 \div 40} = \frac{8}{25}$

$0.320 = \frac{8}{25}$

Example 2: Write 6.95 as a mixed number in simplest form.

① Read.   "6 and 95 hundredths"

② Write. $6\frac{95}{100}$

③ Simplify. $6\frac{95}{100} = 6\frac{19}{20}$

$6.95 = 6\frac{19}{20}$

Example 3: Write $\frac{1}{5}$ and $\frac{2}{3}$ as decimals.

Divide the numerator by the denominator. Insert zeros if needed.

$$\begin{array}{r} 0.2 \\ 5\overline{)1.0} \end{array} \qquad \begin{array}{r} 0.666 \\ 3\overline{)2.0000} \\ -1\,8 \\ \hline 20 \\ -18 \\ \hline 2 \end{array} \quad \leftarrow \text{The digits repeat because the remainder repeats.}$$

$\frac{1}{5} = 0.2 \qquad \frac{2}{3} = 0.666 \ldots = 0.\overline{6}$

0.2 is a *terminating decimal* because there is no remainder.

0.666 . . . is a repeating decimal because the remainder repeats. Write it as $0.\overline{6}$.

Write each decimal as a fraction or mixed number in simplest form.

1. 0.8 _____

2. 0.55 _____

3. 1.25 _____

4. 3.375 _____

5. 0.125 _____

6. 1.32 _____

7. 0.084 _____

8. 0.006 _____

9. 0.65 _____

Write each fraction or mixed number as a decimal.

10. $\frac{13}{20}$ _____

11. $\frac{1}{6}$ _____

12. $\frac{7}{20}$ _____

13. $\frac{19}{25}$ _____

14. $\frac{4}{9}$ _____

15. $\frac{7}{11}$ _____

16. $1\frac{2}{9}$ _____

17. $2\frac{2}{8}$ _____

18. $\frac{1}{25}$ _____

State whether each fraction is less than, equal to, or greater than 0.50. Show your work.

19. $\frac{1}{3}$ _____

20. $\frac{20}{40}$ _____

21. $\frac{1}{6}$ _____

22. $\frac{7}{8}$ _____

23. $\frac{11}{13}$ _____

24. $\frac{8}{20}$ _____

Practice 4-9

Write the decimal represented by each model as a fraction in simplest form.

1.

2.

3.

_____   _____   _____
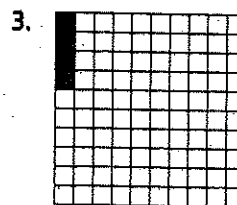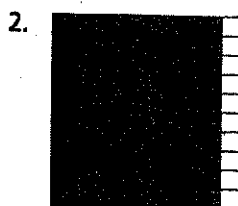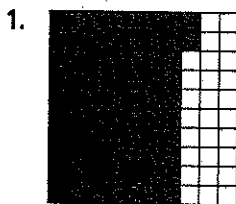
Write each decimal as a fraction or mixed number in simplest form.

4. 0.6 _____

5. 1.25 _____

6. 0.74 _____

7. 0.635 _____

8. 0.8 _____

9. 6.16 _____

10. 0.645 _____

11. 0.782 _____

12. 0.493 _____

Write each fraction or mixed number as a decimal.

13. $\frac{5}{4}$ _____

14. $\frac{7}{8}$ _____

15. $\frac{9}{16}$ _____

16. $\frac{1}{8}$ _____

17. $1\frac{4}{5}$ _____

18. $\frac{9}{100}$ _____

19. $\frac{7}{25}$ _____

20. $\frac{3}{50}$ _____

21. $\frac{1}{125}$ _____

22. You buy $2\frac{3}{4}$ pounds of apples. What number should appear on the digital scale when the apples are weighed?

_____

Rewrite each set of numbers in order from least to greatest.

23. $\frac{2}{5}, 1.4, \frac{1}{3}, 0.5$

24. $2\frac{1}{5}, 2.25, \frac{8}{20}, 2.8$

25. $\frac{1}{3}, 0.4, \frac{4}{9}, 2.5$

26. $\frac{7}{8}, 0.75, \frac{3}{5}, 0.65$

_____   _____   _____   _____

Determine whether each statement of equality is true or false.

27. $\frac{2}{5} = 0.4$

28. $0.4 = \frac{6}{15}$

29. $0.5 = \frac{8}{15}$

_____   _____   _____

30. $10.20 = 10\frac{2}{100}$

31. $4.3 = \frac{43}{10}$

32. $2\frac{4}{5} = 2.8$

_____   _____   _____

Chapters 1–4 Answers (continued)

Reteaching 4-7

1. 4, 8, 12, 16, 20; 5, 10, 15, 20; 20 2. 6, 12, 18, 24, 30, 36, 42; 7, 14, 21, 28, 35, 42; 42 3. 9, 18, 27, 36, 45; 15, 30, 45; 45 4. 10, 20, 30, 40, 50; 25, 50; 50 5. 8, 16, 24; 24; 24 6. 8, 16, 24; 12, 24; 24 7. 4, 8, 12, 16, 20, 24, 28; 7, 14, 21, 28; 28 8. 15, 30, 45, 60, 75; 25, 50, 75; 75 9. 63 10. 24 11. 72 12. 200

Enrichment 4-7

1. every 6 days 2. January 7, January 13, January 19 3. every 12 days 4. January 13 and January 25 5. every 10 days 6. every 20 days 7. every 60 days

Puzzle 4-7

1. 88 2. 65 3. 21 4. 63 5. 30 6. 12 7. 15 8. 36 9. 20 10. 24 11. 44 12. 42 13. 45 14. 84
The maximum number of game pieces in a Chinese checkers board is 60.

Practice (regular) 4-8

1. > 2. = 3. > 4. > 5. > 6. = 7. < 8. < 9. = 10. > 11. < 12. = 13. $\frac{5}{6}, \frac{9}{10}, \frac{14}{15}$ 14. $1\frac{7}{12}, 1\frac{5}{6}, 1\frac{7}{8}$ 15. $\frac{9}{10}, \frac{11}{12}, \frac{14}{15}$ 16. $2\frac{1}{4}, 3\frac{5}{6}, 3\frac{7}{8}$ 17. $\frac{7}{30}, \frac{2}{3}, \frac{11}{15}, \frac{4}{5}$ 18. $1\frac{3}{4}, 2\frac{1}{10}, 2\frac{5}{6}, 3\frac{7}{8}$ 19. $\frac{5}{12}, \frac{17}{30}, \frac{3}{5}$ 20. $1\frac{11}{18}, 1\frac{5}{12}, 1\frac{11}{12}, 2\frac{1}{6}$ 21. $\frac{17}{20}, 1\frac{18}{25}, 2\frac{31}{36}$ 22. > 23. > 24. > 25. < 26. > 27. > 28. > 29. > 30. < 31. $5\frac{1}{4}, 5\frac{5}{16}, 5\frac{3}{8}, 5\frac{5}{8}$

Guided Problem Solving 4-8

1. $12\frac{9}{20}$ ounces, $12\frac{7}{16}$ ounces 2. Determine which drink is the better buy. 3. which is larger 4. 80 5. $\frac{36}{80}, \frac{35}{80}$ 6. $\frac{36}{80}$ 7. the $12\frac{9}{20}$-ounce drink 8. Change both mixed numbers to decimals and compare them. 9. Ana drove more miles because $\frac{1}{4} > \frac{1}{8}$.

Practice (adapted) 4-8

1. > 2. = 3. > 4. > 5. > 6. = 7. $\frac{5}{6}, \frac{9}{10}, \frac{14}{15}$ 8. $1\frac{7}{12}, 1\frac{5}{6}, 1\frac{7}{8}$ 9. $\frac{9}{10}, \frac{11}{12}, \frac{14}{15}$ 10. $2\frac{1}{4}, 3\frac{5}{6}, 3\frac{7}{8}$ 11. $\frac{7}{30}, \frac{2}{3}, \frac{11}{15}, \frac{4}{5}$ 12. $1\frac{3}{4}, 2\frac{1}{10}, 2\frac{5}{6}, 3\frac{7}{8}$ 13. > 14. > 15. > 16. < 17. > 18. > 19. > 20. > 21. < 22. $5\frac{1}{4}, 5\frac{5}{16}, 5\frac{3}{8}, 5\frac{5}{8}$

Activity Lab 4-8

1. −9 2. −0.057 3. 0.0952 4a. 0 4b. They are equivalent fractions. 5. > 6. < 7. < 8. = 9. > 10. > 11. > 12. < 13. = 14. <

Reteaching 4-8

1. < 2. < 3. > 4. = 5. < 6. = 7. > 8. < 9. < 10. $\frac{1}{2}, \frac{5}{8}, \frac{3}{4}$ 11. $\frac{5}{8}, \frac{2}{3}, \frac{5}{6}$ 12. $\frac{5}{12}, \frac{1}{2}, \frac{2}{3}$ 13. $\frac{7}{12}, \frac{3}{5}, \frac{2}{3}$ 14. $\frac{3}{8}, \frac{1}{2}, \frac{3}{5}$ 15. $\frac{3}{4}, \frac{13}{16}, \frac{7}{8}$ 16. Eugene; $1\frac{1}{9} = 1\frac{4}{36}; 1\frac{5}{12} = 1\frac{15}{36}; 1\frac{15}{36} > 1\frac{4}{36}$

Enrichment 4-8

1. Sample answer: $\frac{1}{3}$ of one pound of silver dollars. Even though there are fewer pounds, the value is greater. 2. Sample answer: $\frac{1}{3}$ of two million dollars, $\frac{1}{3}$ of two million is about $\$666,667; \frac{1}{2}$ of one million is $\$500,000. 3. Sample answer: $\frac{1}{6}$ of 12 dozen; $\frac{1}{6}$ of 12 is 2 which is greater than $\frac{1}{2}$ of 3, or $1\frac{1}{2}$. 4. Check students' work.

Puzzle 4-8

1. Check students' work.

Practice (regular) 4-9

1. $0.72, \frac{18}{25}$ 2. $0.9, \frac{9}{10}$ 3. $0.04; \frac{1}{25}$ 4. $\frac{3}{5}$ 5. $1\frac{1}{4}$ 6. $\frac{37}{50}$ 7. $\frac{127}{200}$ 8. $\frac{4}{5}$ 9. $6\frac{4}{25}$ 10. $\frac{129}{200}$ 11. $\frac{391}{500}$ 12. $\frac{493}{1,000}$ 13. 1.25 14. 0.875 15. 0.5625 16. 0.125 17. 1.8 18. 0.09 19. 0.28 20. 0.06 21. 0.008 22. 2.75 23. $\frac{1}{3}, \frac{2}{5}, 0.5, 1.4$ 24. $\frac{8}{20}, 2\frac{1}{5}, 2.25, 2.8$ 25. $\frac{1}{3}, 0.4, \frac{4}{9}, 2.5$ 26. $\frac{2}{3}, 0.65, 0.75, \frac{7}{8}$ 27. true 28. true 29. false 30. false 31. true 32. true

Guided Problem Solving 4-9

1. Write $1\frac{1}{4}$ as a decimal. 2. one divided by 4 3. 1.0 4. 0.25 5. 1.25 6. 1.25 7. Write 1.25 as a mixed number and see if it is $1\frac{1}{4}$. 8. 3.75 pounds

Practice (adapted) 4-9

1. $0.72, \frac{18}{25}$ 2. $0.9, \frac{9}{10}$ 3. $0.04; \frac{1}{25}$ 4. $\frac{3}{5}$ 5. $1\frac{1}{4}$ 6. $\frac{37}{50}$ 7. $\frac{127}{200}$ 8. $\frac{4}{5}$ 9. $6\frac{4}{25}$ 10. 1.25 11. 0.875 12. 0.5625 13. 0.125 14. 1.8 15. 0.09 16. 2.75 17. $\frac{1}{3}, \frac{2}{5}, 0.5, 1.4$ 18. $\frac{8}{20}, 2\frac{1}{5}, 2.25, 2.8$ 19. $\frac{1}{3}, 0.4, \frac{4}{9}, 2.5$ 20. true 21. true 22. false

Activity Lab 4-9

1. 0.466666... 2. $\frac{21}{50}$ 3. 0.8125 4. $\frac{97}{125}$ 5. 42.3 6. 13.583333... 7. 93.716666... 8. 245.6666... 9. $325\frac{13}{400}$

Reteaching 4-9

1. $\frac{4}{5}$ 2. $\frac{11}{20}$ 3. $1\frac{1}{4}$ 4. $3\frac{3}{8}$ 5. $\frac{1}{8}$ 6. $1\frac{8}{25}$ 7. $\frac{21}{250}$ 8. $\frac{3}{500}$ 9. $\frac{13}{20}$ 10. 0.65 11. $0.1\overline{6}$ 12. 0.35 13. 0.76 14. $0.\overline{4}$ 15. $0.\overline{63}$ 16. $1.\overline{2}$ 17. 2.25 18. 0.04 19. less than 20. equal to 21. less than 22. greater than 23. greater than 24. less than

Enrichment 4-9

1. 0.1111..., 0.09090909..., 0.2222..., 0.18181818..., 0.3333..., 0.27272727..., 0.4444..., 0.36363636..., 0.5555..., 0.45454545..., 0.6666..., 0.54545454..., 0.7777..., 0.63636363... 2. Sample answer: The decimal is a repeating decimal. The repeating part of the decimal is the same as the numerator of the fraction.

Name _____ Class _____ Date _____

Reteaching 7-6

Percents, Fractions, and Decimals

- To *write a percent as a fraction* in simplest form, first write a fraction with a denominator of 100. Then simplify.

  $74\% = \frac{74}{100} = \frac{37}{50}$

- To *write a percent as a decimal,* first write a fraction with a denominator of 100. Then write the decimal.

  $74\% = \frac{74}{100} = 0.74$

- To *write a decimal as a percent,* move the decimal point two places to the right.

  $0.23 = 23\%$

Here are two ways to *write a fraction as a percent.*

- Write an equivalent fraction with a denominator of 100, then write the percent.

  $\frac{3}{20} = \frac{15}{100} = 15\%$

- Divide the numerator by the denominator.

$$\frac{3}{8} = \begin{array}{r} 0.375 \\ 8)\overline{3.000} \\ \underline{-2\,4} \\ 60 \\ \underline{-56} \\ 40 \\ \underline{-40} \\ 0 \end{array} = 37.5\%$$

$\uparrow$ Move the decimal point two places to the right.

So, $\frac{3}{8} = 37.5\%$.

Write each percent as a decimal and as a fraction in simplest form.

1. 30%

2. 14%

3. 16%

4. 5%

_____

5. 92%

6. 80%

7. 21%

8. 38%

_____

Write each fraction or decimal as a percent.

9. $\frac{17}{25}$

10. 0.85

11. 0.16

12. $\frac{5}{40}$

_____

13. $\frac{7}{200}$

14. $\frac{1}{10}$

15. 0.64

16. 0.008

_____

17. $\frac{9}{20}$

18. $\frac{6}{15}$

19. 0.32

20. 0.07

_____

21. $\frac{13}{100}$

22. $\frac{45}{50}$

23. 0.010

24. 0.60

_____

Name _____ Class _____ Date _____

Practice 7-6

Percents, Fractions, and Decimals

Write each percent as a decimal and as a fraction in simplest form.

1. 46% _____

2. 17% _____

3. 90% _____

4. 5% _____

Write each decimal as a percent and as a fraction in simplest form.

5. 0.02 _____

6. 0.45 _____

7. 0.4 _____

8. 0.92 _____

Write each fraction as a decimal and as a percent.

9. $\frac{3}{5}$ _____

10. $\frac{7}{10}$ _____

11. $\frac{13}{25}$ _____

12. $\frac{17}{20}$ _____

The table shows the fraction of students who participated in extracurricular activities from 1965 to 2000. Complete the table by writing each fraction as a percent.

Students' Extracurricular Choices

Year	1965	1970	1975	1980	1985	1990	1995	2000
Student participation (fraction)	$\frac{3}{4}$	$\frac{8}{10}$	$\frac{17}{20}$	$\frac{39}{50}$	$\frac{21}{25}$	$\frac{19}{25}$	$\frac{87}{100}$	$\frac{9}{10}$
Student participation (percent)								

Write each fraction or decimal as a percent. Write the percent (without the percent sign) in the puzzle.

Across

1. $\frac{3}{5}$

2. $\frac{1}{5}$

3. 0.55

5. 0.23

6. $\frac{7}{20}$

7. 0.17

9. 0.4

10. $\frac{9}{25}$

Down

1. $\frac{13}{20}$

2. 0.25

3. $\frac{1}{2}$

4. $\frac{3}{20}$

5. 0.24

6. $\frac{3}{10}$

7. 0.1

8. $\frac{4}{25}$

Name _____ Class _____ Date _____
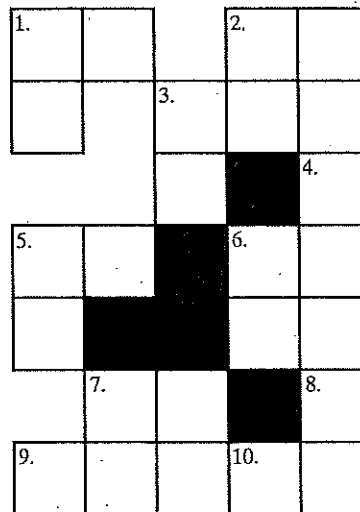
Practice 7-7

Finding the Percent of a Number

Find each answer.

1. 15% of 20

2. 40% of 80

3. 20% of 45

_____

_____

_____

4. 90% of 120

5. 65% of 700

6. 25% of 84

_____

_____

_____

7. 60% of 50

8. 45% of 90

9. 12% of 94

_____

_____

_____

10. 37% of 80

11. 25% of 16

12. 63% of 800

_____

_____

_____

Solve each problem.

13. Teri used 60% of 20 gallons of paint. How much did she use?

_____

14. The Badgers won 75% of their 32 games this year. How many games did they win?

_____

15. A survey of the students at Lakeside School yielded the results shown below. There are 1,400 students enrolled at Lakeside School. Complete the table for the number of students in each activity.

How Lakeside Students Spend Their Time on Saturday

Activity	Percent of Students	Number of Students
Baby-sitting	22%	0.22 × 1,400 = 308
Sports	26%	
Job	15%	
At home	10%	
Tutoring	10%	
Other	17%	

Chapters 5–8 Answers (continued)

Practice (regular) 7-6

1. 0.46; $\frac{23}{50}$ **2.** 0.17; $\frac{17}{100}$ **3.** 0.9; $\frac{9}{10}$ **4.** 0.05; $\frac{1}{20}$ **5.** 2%; $\frac{1}{50}$
6. 45%; $\frac{9}{20}$ **7.** 40%; $\frac{2}{5}$ **8.** 92%; $\frac{23}{25}$ **9.** 0.6; 60% **10.** 0.7; 70%
11. 0.52; 52% **12.** 0.85; 85% Table: 75%; 80%; 85%; 78%;
84%; 76%; 87%; 90%
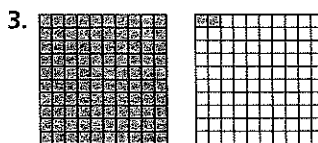
Guided Problem Solving 7-6

1. 99% **2.** 100 **3.** 100 **4.** $\frac{99}{100}$ **5.** two places to the right of the
decimal point **6.** 0.99 **7.** Divide 99 by 100 and see if the
answer equals 0.99. **8.** $\frac{61}{100}$; 0.61

Practice (adapted) 7-6

1. 0.46; $\frac{23}{50}$ **2.** 0.17; $\frac{17}{100}$ **3.** 0.9; $\frac{9}{10}$ **4.** 2%; $\frac{1}{50}$ **5.** 45%; $\frac{9}{20}$
6. 40%; $\frac{2}{5}$ **7.** 0.6; 60% **8.** 0.7; 70% **9.** 0.52; 52%
Table: 75%; 80%; 85%; 78%; 84%; 76%; 87%; 90%

Activity Lab 7-6

1. 0.875 **2.** 0.01; 0.4; 1.25; 1 **3a.** 75 **3b.** to convert it to a
percent **4.** 1.077, 107.7% **5.** 0.846; 84.6% **6.** 0.85; 85%
7. 0.222, 22.2% **8.** 0.80, 80% **9.** 1.1; 110% **10.** 1.167; 116.7%
11. 4.692; 469.2% **12.** 0.2727; 27.3% **13.** 2.25; 225%
14. 0.875, 87.5% **15.** 1.2; 120% **16.** Check students' answers.

Reteaching 7-6

1. 0.30, $\frac{3}{10}$ **2.** 0.14, $\frac{7}{50}$ **3.** 0.16, $\frac{4}{25}$ **4.** 0.05, $\frac{1}{20}$ **5.** 0.92, $\frac{23}{25}$ **6.** 0.80, $\frac{4}{5}$
7. 0.21, $\frac{21}{100}$ **8.** 0.38, $\frac{19}{50}$ **9.** 68% **10.** 85% **11.** 16% **12.** 12.5%
13. 3.5% **14.** 10% **15.** 64% **16.** 0.8% **17.** 45% **18.** 40%
19. 32% **20.** 7% **21.** 13% **22.** 90% **23.** 1% **24.** 60%

Enrichment 7-6

1. 135% **2.** 150%
3.

4.

5. 223%;

Puzzle 7-6

$\frac{22}{25}$; 24%; 57%; $\frac{17}{100}$; 25%; $\frac{3}{4}$; 85%; 12%

Practice (regular) 7-7

1. 3 **2.** 32 **3.** 9 **4.** 108 **5.** 455 **6.** 21 **7.** 30 **8.** 40.5 **9.** 11.28
10. 29.6 **11.** 4 **12.** 504 **13.** 137.5 **14.** 75.6 **15.** 46.2 **16.** 12 gallons
17. 24 games **18.** $162 **19.** 308; 364; 210; 140; 140; 238

Activity	Percent of Students	Number of Students
Baby-sitting	22%	**308**
Sports	26%	**364**
Job	15%	**210**
At home	10%	**140**
Tutoring	10%	**140**
Other	17%	**238**

Guided Problem Solving 7-7

1. 46%; of 85 people; how many people **2.** Estimate the number
of people out of 85 who would wear glasses or lenses. **3.** Write
and solve a proportion. **4.** $\frac{46}{100}$ **5.** $\frac{x}{85}$ **6.** $\frac{46}{100} = \frac{x}{85}$
7. $x = 39.1$ **8.** 39 people **9.** Divide 39 by 85 and see if it is
approximately 0.46; yes **10.** 970 students

Practice (adapted) 7-7

1. 3 **2.** 32 **3.** 9 **4.** 108 **5.** 455 **6.** 21 **7.** 30 **8.** 40.5 **9.** 11.28
10. 29.6 **11.** 4 **12.** 504 **13.** 12 gallons **14.** 24 games
15. 364; 210; 140; 140; 238

Activity Lab 7-7

1a. $12.00 **1b.** $4.00 **2.** $5.10; $0.10 **3a.** $18.75 **3b.** $6.25
4. $24.00 **5.** $34.50 **6.** $60.00 **7.** $17.40 **8.** $39.00 **9.** $52.50
10. $18.00 **11.** $7.50

Reteaching 11-8

Graphing in the Coordinate Plane

Example: Graph $(2, -4)$.

- 2 is the *x-coordinate*. It tells how far to move left or right from the origin.

- -4 is the *y-coordinate*. It tells how far to move up or down from the origin.

Find the coordinates of point A.

① Start at the origin.

② How far left or right? *3 left*
The *x-coordinate* is -3.

③ How far up or down? *5 up*
The *y-coordinate* is 5.

The coordinates of point A are $(-3, 5)$.
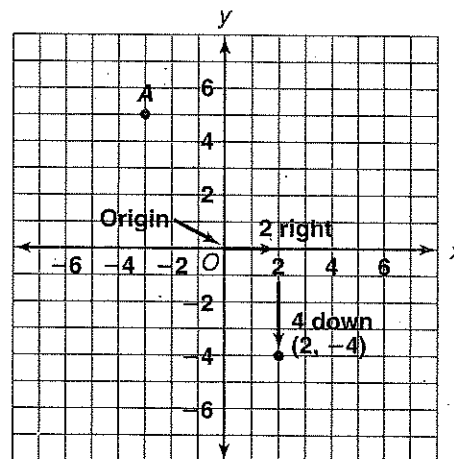
Graph each point in a coordinate plane.

1. $B\,(1, 6)$
2. $C\,(-4, -3)$
3. $D\,(0, 5)$
4. $E\,(-2, 2)$
5. $F\,(-1, -5)$
6. $G\,(6, -4)$
7. $H\,(5, 5)$
8. $J\,(4, 0)$
9. $K\,(-4, -4)$
10. $L\,(2, -3)$
11. $M\,(-2, 0)$
12. $N\,(5, -1)$
13. $P\,(0, -3)$
14. $Q\,(-4, 0)$

Find the coordinates of each point.

15. R _____
16. S _____
17. T _____
18. U _____

Look at the coordinate grid above.

19. If you travel 7 units down from S, at which point will you be located?

_____

20. If you travel 4 units right from T and 2 units down, at which point will you be located?

_____

Name _____ Class _____ Date _____
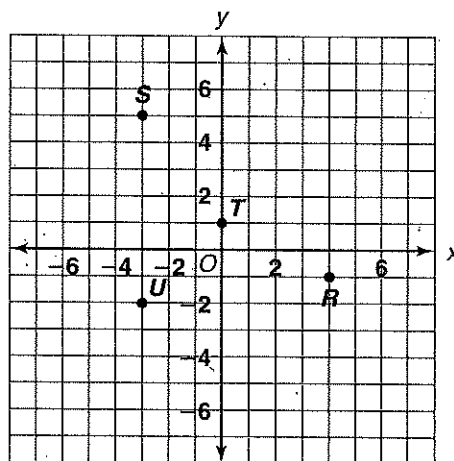
Practice 11-8

Graphing in the Coordinate Plane

Name the point with the given coordinates in the coordinate plane at the right.

1. $(2, 3)$ _____   2. $(-4, 0)$ _____

3. $(-3, -5)$ _____   4. $(0, 6)$ _____

Find the coordinates of each point at the right.

5. J _____   6. E _____

7. D _____   8. A _____

9. G _____   10. C _____
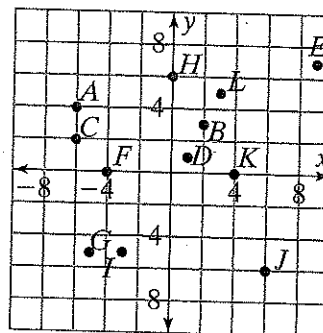
Graph each point on the coordinate plane at the right.

11. $A (8, -4)$ 12. $B (-4, 8)$

13. $C (4, 8)$ 14. $D (-8, -4)$

15. $E (8, 4)$ 16. $F (-4, -8)$

17. A taxi begins at $(4, -3)$. It travels 3 blocks west and 5 blocks north to pick up a customer. What are the customer's coordinates?

_____
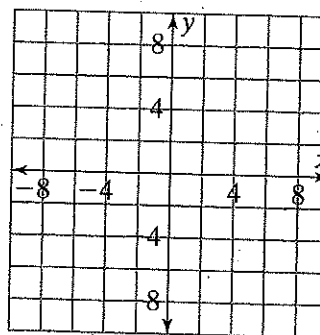
18. A moving truck fills up a shipment at an old address, at $(-2, 1)$. It travels 7 blocks south and 6 blocks east to the new address. What is the location of the new address?

_____

Use the coordinate plane at the right.

19. Graph four points on the coordinate plane so that when the points are connected in order, the shape is a rectangle. List the coordinates of the points.

_____

20. Graph four points on the coordinate plane so that when the points are connected in order, the shape is a parallelogram that is not a rectangle. List the coordinates of the points.

_____

Practice

Course 1 Lesson 11-8   **209**