

Student Workbook Answers

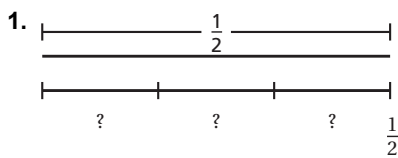
16. 5 is the GCF, not LCM; The LCM is 30.
 17. a. 21 days b. 2 piano lessons; 6 tuba lessons
 18. 105 19. 66 20. 24 21. 7:35 A.M.

1.6 Extension Practice

1. $\frac{25}{30}, \frac{9}{30}$ 2. $\frac{20}{36}, \frac{33}{36}$
 3. > 4. < 5. = 6. <
 7. $1\frac{1}{12}$ 8. $\frac{7}{8}$ 9. $3\frac{27}{28}$ 10. $6\frac{3}{10}$
 11. $\frac{1}{4}$ 12. $\frac{23}{60}$ 13. $4\frac{17}{28}$ 14. $\frac{4}{9}$
 15. $\frac{1}{12}$ cup 16. $2\frac{5}{12}$ pounds

Chapter 2

2.1 Activity



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



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

You drank $\frac{1}{3}$ of the water.

2. $\frac{3}{4} \times \frac{4}{5} = \frac{12}{20} = \frac{3}{5}$ 3. $\frac{2}{3}$ of $\frac{1}{2} = \frac{1}{3}$
 4. $\frac{3}{4}$ of $\frac{4}{5} = \frac{3}{5}$ 5. $\frac{2}{3}$ of $\frac{5}{6} = \frac{5}{9}$
 6. $\frac{1}{6}$ of $\frac{1}{4} = \frac{1}{24}$ 7. $\frac{2}{5}$ of $\frac{1}{2} = \frac{1}{5}$
 8. $\frac{5}{8}$ of $\frac{4}{5} = \frac{1}{2}$

9. It means to take a part of a fraction.

10. Multiply the numerators and multiply the denominators.

2.1 Practice

1. $\frac{3}{20}$ 2. $\frac{4}{21}$ 3. $\frac{14}{33}$ 4. $\frac{5}{7}$
 5. $\frac{1}{4}$ 6. $\frac{4}{25}$ 7. $\frac{8}{39}$ 8. $10\frac{1}{2}$
 9. $1\frac{2}{3}$ 10. $\frac{16}{81}$ 11. $\frac{1}{6}$ 12. $1\frac{31}{33}$
 13. $\frac{3}{5}$ 14. 4 15. $3\frac{1}{2}$ 16. 80
 17. $8\frac{1}{4}$ 18. 24 19. $1\frac{2}{3}$ 20. $43\frac{1}{2}$
 21. 1

22. The mixed numbers must be changed to improper fractions before multiplying.

$$3\frac{7}{8} \times 6\frac{2}{5} = \frac{31}{8} \times \frac{32}{5} = \frac{31 \times \overset{4}{\cancel{32}}}{\underset{1}{\cancel{8}} \times 5} = \frac{124}{5} = 24\frac{4}{5}$$

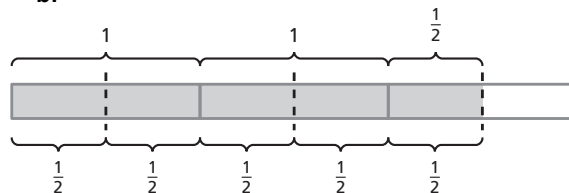
23. a. $\frac{1}{10}$ of the class b. 3 students

24. $6\frac{1}{2}$ ft 25. $584\frac{3}{8}$ in.²

2.2 Activity

1. a. $3 \div \frac{2}{3} = 4\frac{1}{2}$; $4 \div \frac{1}{2} = 8$; $4\frac{1}{2} \div \frac{1}{2} = 9$; $3 \div \frac{2}{3} = 4\frac{1}{2}$

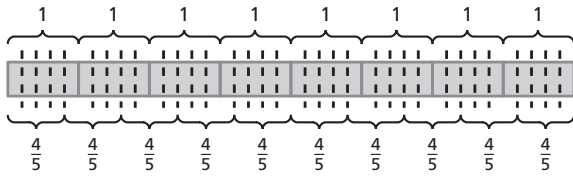
b.



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

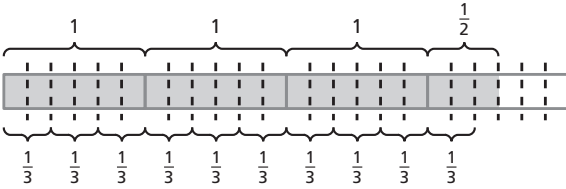
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c.



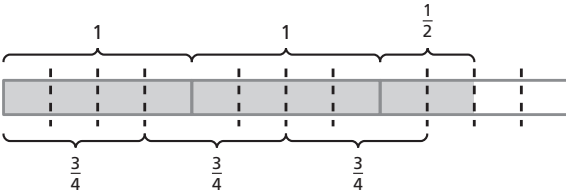
$$8 \div \frac{4}{5} = 10$$

d.



$$\frac{7}{2} \div \frac{1}{3} = 10\frac{1}{2}$$

e.



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

2. a. Division Table

$8 \div 16$	$\frac{1}{2}$
$8 \div 8$	1
$8 \div 4$	2
$8 \div 2$	4
$8 \div 1$	8
$8 \div \frac{1}{2}$	16
$8 \div \frac{1}{4}$	32
$8 \div \frac{1}{8}$	64

Multiplication Table

$8 \times \frac{1}{16}$	$\frac{1}{2}$
$8 \times \frac{1}{8}$	1
$8 \times \frac{1}{4}$	2
$8 \times \frac{1}{2}$	4
8×1	8
8×2	16
8×4	32
8×8	64

b. They are the same.

c. When you write the whole numbers as improper fractions, the numerators and denominators are switched.

d. To divide by a fraction, switch the numerator and denominator of the divisor and change the operation from division to multiplication.

$$e. 3 \div \frac{2}{3} = 3 \times \frac{3}{2} = \frac{3 \times 3}{2} = \frac{9}{2} = 4\frac{1}{2};$$

$$\frac{5}{2} \div \frac{1}{2} = \frac{5}{2} \times 2 = \frac{5 \times \cancel{2}^1}{\cancel{2}^1} = 5;$$

$$8 \div \frac{4}{5} = 8 \times \frac{5}{4} = \frac{\cancel{8}^2 \times 5}{\cancel{4}_1} = 10;$$

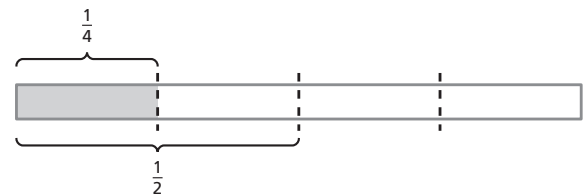
$$\frac{7}{2} \div \frac{1}{3} = \frac{7}{2} \times \frac{3}{1} = \frac{7 \times 3}{2} = \frac{21}{2} = 10\frac{1}{2};$$

$$\frac{5}{2} \div \frac{3}{4} = \frac{5}{2} \times \frac{4}{3} = \frac{5 \times \cancel{4}^2}{\cancel{2}_1 \times 3} = \frac{10}{3} = 3\frac{1}{3}$$

3. Use a model or rewrite the division as multiplication.

Sample answer: $6 \div \frac{2}{3} = 6 \cdot \frac{3}{2} = 9$

4. $\frac{1}{2}$; Sample answer: Used a model or used related multiplication.



$$\frac{1}{4} \div \frac{1}{2} = \frac{1}{2} \text{ or } \frac{1}{4} \cdot 2 = \frac{1}{2}$$

2.2 Practice

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

5. $\frac{1}{2}$ 6. $\frac{1}{8}$ 7. $4\frac{1}{2}$ 8. 35

9. $\frac{2}{3}$ 10. $\frac{1}{27}$ 11. $\frac{5}{9}$ 12. $1\frac{7}{20}$

13. $\frac{1}{24}$

Student Workbook Answers

14. The reciprocal of 6 was not written.

$$\frac{3}{4} \div 6 = \frac{3}{4} \times \frac{1}{6} = \frac{3}{24} = \frac{1}{8}$$

15. yes

16. yes

17. No, $\frac{2}{3} = \frac{12}{18}$. The reciprocal of $\frac{2}{3}$ and $\frac{12}{18}$ is $\frac{3}{2}$.

18. no; The reciprocal of $\frac{4}{7}$ is $\frac{7}{4}$. The reciprocal of

$$\frac{7}{8} \text{ is } \frac{8}{7}.$$

19. $\frac{10}{7} \times \frac{7}{10} = 1$

20. $8 \div \frac{1}{3} = 24$

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

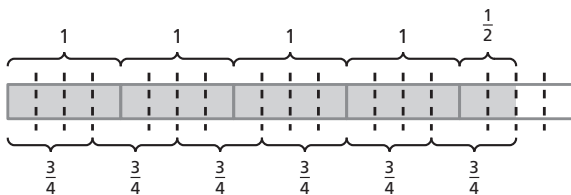
22. 8 chairs

23. no; The reciprocal of $\frac{3}{4}$ is $\frac{4}{3}$. For any fraction with a numerator of 1, the reciprocal is a whole number.

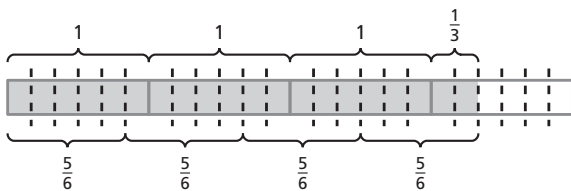
2.3 Activity

1. Check students' work.

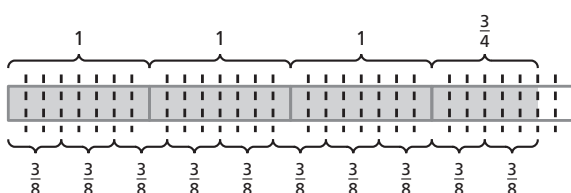
2. a. $4\frac{1}{2} \div \frac{3}{4}; 6$



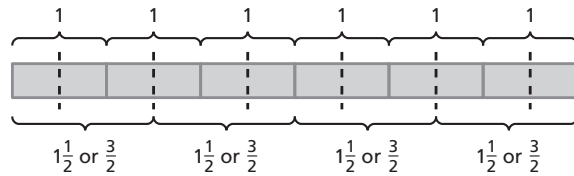
b. $3\frac{1}{3} \div \frac{5}{6}; 4$



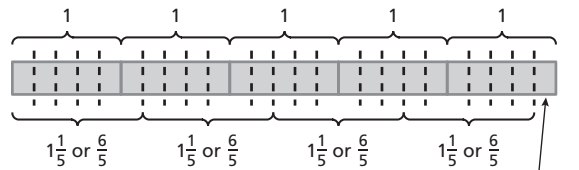
c. $3\frac{3}{4} \div \frac{3}{8}; 10$



d. $6 \div 1\frac{1}{2}; 4$

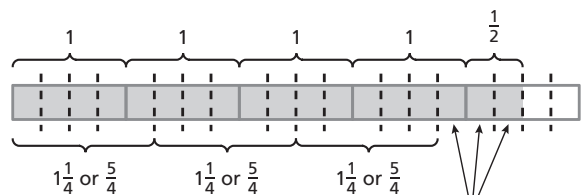


e. $5 \div 1\frac{1}{5}; 4\frac{1}{6}$



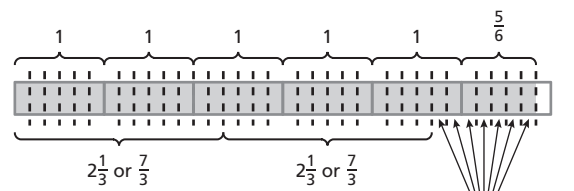
This remaining piece represents $\frac{1}{6}$ of $1\frac{1}{5}$.

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



These remaining pieces represent $\frac{3}{5}$ of $1\frac{1}{4}$.

g. $5\frac{5}{6} \div 2\frac{1}{3}; 2\frac{1}{2}$



These remaining pieces represent $\frac{1}{2}$ of $2\frac{1}{3}$.

3. *Sample answer:* You can use it in a story where cooking is involved.

4. *Sample answer:* Write each mixed number as an improper fraction. Then divide as you would with proper fractions.

Student Workbook Answers

2.3 Practice

1. 10 2. $6\frac{1}{2}$ 3. 8 4. $3\frac{3}{4}$
 5. $1\frac{2}{5}$ 6. $\frac{2}{9}$ 7. $\frac{4}{57}$ 8. 4
 9. $\frac{4}{5}$ 10. $\frac{5}{7}$ 11. $4\frac{2}{7}$ 12. $\frac{14}{15}$

13. The error was finding the reciprocal of both fractions, not just the divisor.

$$8 \div 2\frac{3}{4} = 8 \div \frac{11}{4} = 8 \times \frac{4}{11} = \frac{32}{11} = 2\frac{10}{11}$$

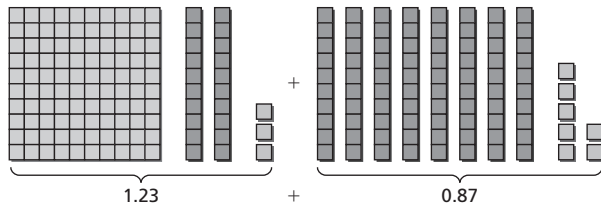
14. $3\frac{9}{13}$ 15. $4\frac{7}{38}$ 16. $3\frac{17}{35}$ 17. $\frac{5}{43}$

18. 12 pieces 19. $1\frac{4}{7}$ times 20. 14 plots

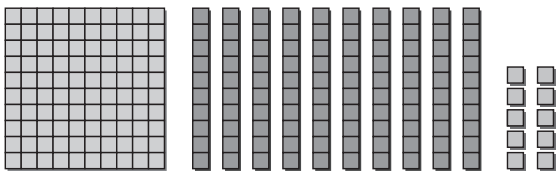
21. Six loaves can be made and there is 4 cups of flour left over.

2.4 Activity

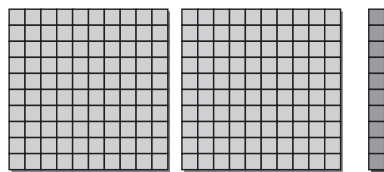
1. a. For 1.23, you need 1 one, 2 tenths, and 3 hundredths. For 0.87, you need 8 tenths and 7 hundredths.



1 one, 10 tenths, 10 hundredths:



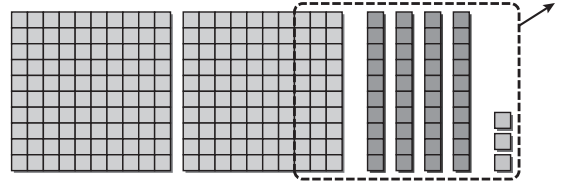
2 ones, 1 tenth, 0 hundredths:



2.1

- b. 2.6 c. 3.06 d. 1.59

2. a. 2.43



1.7

- b. 0.6 c. 3.22 d. 1.49

3. a. 210; 260; 306; 159; 170; 60; 322; 149

b. *Sample answer:* The expressions shown correspond with an expression from Activities 1 and 2. The sequence of digits and operations are the same for corresponding expressions. The sums and differences are similar except for a decimal point.

c. *Sample answer:* Adding or subtracting decimals is similar to adding or subtracting whole numbers except you need to line up the decimal points and bring down a decimal point in the correct position for the sum or difference.

4. a. 18.99 b. 99.971

- c. 30.11 d. 13.801

5. *Sample answer:* Addition: buying clothes; You want to know the total cost of buying a pair of jeans for \$29.99 and a pair of shorts for \$25.99.

Subtraction: using a coupon; You want to know the total cost of buying a box of cereal for \$2.89 and using a coupon for \$0.75 off.

6. You can use base ten blocks to model the numbers, then combine the blocks to add or remove blocks to subtract. You can also use a place value chart to write the digits of each number in the correct place value position, then add or subtract as you would with whole numbers keeping the decimal point aligned.

2.4 Practice

1. 9.016 2. 6.107 3. 26.735 4. 31.099
 5. 32.854 6. 30.1 7. 3.33 8. 4.169
 9. 3.227 10. 4.291 11. 4.148 12. 2.048
 13. \$1.77 14. 25.441 15. 5.241 16. 6.874
 17. 13.627 18. 3.253 19. 4.214

20. *Sample answer:* $14.6 + 2.225 = 16.825$

21. *Sample answer:* $20.096 - 3.271 = 16.825$

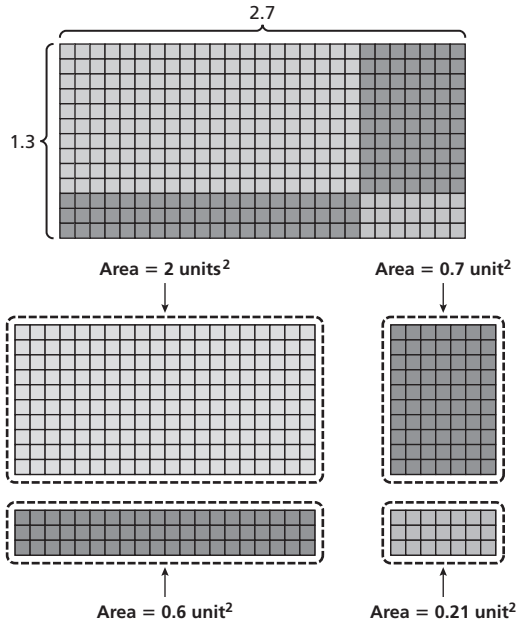
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22. a. 45.625 in.
b. no; The suitcase is 0.625 inch over the limit.

23. \$38.47 24. 47.678 cm

2.5 Activity

1. a.

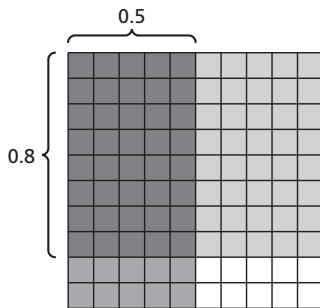


$$\begin{array}{r} 2.0 \\ 0.7 \\ 0.6 \\ + 0.21 \\ \hline 3.51 \text{ units}^2 \end{array}$$

So, $2.7 \cdot 1.3 = 3.51$.

- b. 1.98 c. 5.52 d. 7.68

2. a.



Because 40 hundredths are shaded with both colors, the product is $\frac{40}{100} = 0.4$; 0.4

- b. 0.15 c. 0.42 d. 0.18

3. a. 351; 198; 552; 768; 40; 15; 42; 18

b. *Sample answer:* The expressions shown correspond with an expression from Activities 1 and 2. The sequence of digits and operations are the same for the corresponding expressions. The products are similar except for a decimal point.

c. *Sample answer:* Multiplying decimals is similar to multiplying whole numbers except you need to know where to place the decimal point in the product. The number of decimal places in the product depends on the number of decimal places in the decimal factors of the expression.

4. *Sample answer:* You can also use base ten blocks to form a rectangle and determine its area. The area is the product. You can also use an area model.

2.5 Practice

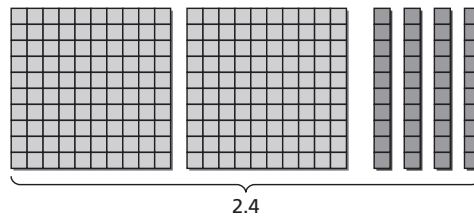
1. 20.54 2. 3.7086 3. 18.4080 4. 19.2
5. 40.8 6. 4.76 7. 25.2 8. 43.4
9. 3.9 10. 11.88 11. 91.95 12. 9.2

13. The answer should have 4 decimal places; 0.0032

14. \$17.38 15. 0.12 16. 0.045
17. 0.238 18. 0.73 19. 93.12
20. 1.1776 21. 2.7324 22. 0.05248
23. 9.51172 24. 65,767 mi² 25. \$3.05

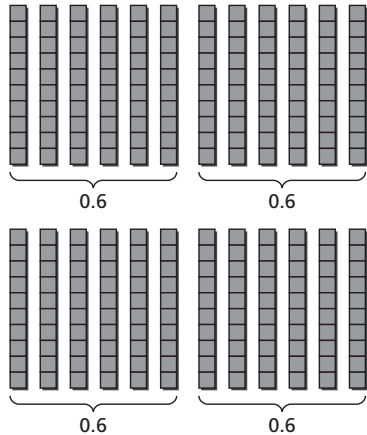
2.6 Activity

1. a.



2 ones, 4 tenths, 0 hundredths;

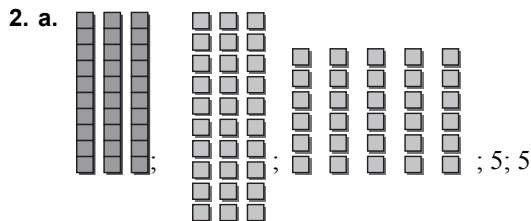
Student Workbook Answers



4; 4

b. 0.9 c. 1.3 d. 4 e. 8

f. $1.6 \div 0.8 = 2$ or $1.6 \div 2 = 0.8$



b. 5 c. 60 d. 2 e. 4

3. *Sample answer:* To divide by tenths as in $2.4 \div 0.6$, model 2.4 with tenth blocks, then see how many groups of 0.6 can be formed. To divide by hundredths as in $0.3 \div 0.06$, model 0.3 with hundredths blocks, then see how many groups of 0.06 can be formed.

4. *Answer should include, but is not limited to:*
A poem about dividing decimals

5. *Answer should include, but is not limited to:*
A cartoon about dividing decimals—The poem from Activity 4 may be used in the cartoon.

2.6 Practice

1. $42 \overline{)231}$ 2. $15 \overline{)1287}$ 3. $535 \overline{)8760}$

4. 0.2 5. 0.53 6. 4.1

7. 2.4 8. 6.7 9. 0.064

10. The dividend was not aligned properly. The answer should be 0.27.

11. \$32.10 12. 30.3 13. 5.31 14. 37.2

15. 10.7 16. 3.43 17. 14 18. 27

19. 18.2 20. 3 21. 14.7 22. 30
 23. 3.4 24. 14 25. 410 26. 51,000
 27. 8400 songs 28. 300 sheets of paper
 29. 36.57 30. 6476.67 31. 7.81

Chapter 3

3.1 Activity

1. a.

You babysit for 3 hours. You receive \$12. What is your hourly wage?

3 h	×	+	=
\$12	-	÷	

hourly wage (\$ per hour)	=	\$12	÷	3 h
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$$\begin{aligned} \text{hourly wage} &= 12 \div 3 \\ &= 4 \end{aligned}$$

So, your hourly wage is \$4 per hour.

b. *Sample answer:* Multiply the hourly wage by the number of hours worked.

2. a. $6 \div 2$; \$3 b. $60 - 27 - 15$; \$18

c. 5×3 ; \$15 d. $4500 - 2000$; 2500 ft

e. 2×20 ; 40 cm

3. Write the problem. Underline the important numbers and units. Then circle the key word for the question. Write an expression that answers the key word question. Then evaluate the expression.

Sample answer:

Addition: You buy a drink for \$2 and a sandwich for \$3. How much did you spend total?
 $2 + 3 = \$5$

Subtraction: You have \$20 and you buy a shirt for \$15. How much do you have left? $20 - 15 = \$5$

Multiplication: You earn \$20 per week. How much money do you earn in 2 weeks? $20 \times 2 = \$40$

Division: You earned \$15 by mowing 3 lawns. How much money did you earn for each lawn?
 $15 \div 3 = \$5$

3.1 Practice

1. terms: 3, c, e

2. terms: 5m, 9

coefficients: 1, 1

coefficient: 5

constant: 3

constant: 9