SHADY SIDE
ACADEMY

COUNTRY DAY SCHOOL
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Dear Fourth Grade Families,

Congratulations to your child for completing a full year of math learning! It was a busy year. While sometimes fun and challenging, every student worked hard and grew as a mathematician. In order to support the children on their journey into fifth grade, we have put together a packet that reinforces the skills covered this year.

The purpose of this packet is for your rising fifth grader to maintain their skills over the summer. You and your child may decide the areas that may need revisited and create a schedule to sustain learning and practice over the summer. While the completion of this packet is not mandatory, it is strongly suggested.

In third grade we covered the following concepts:

- Place value of whole numbers
- Estimation and number theory
- Whole number multiplication and division
- Line graphs
- Probability
- Fractions and mixed numbers
- Decimals
- Adding and subtracting decimals
- Perpendicular and parallel lines
- Squares and rectangles
- Area and perimeter

In addition to the math packet, the children may also benefit from these additional resources:

Summer Bridge Books

Bridge books are a good way to practice pencil-to-paper skills as well as to keep a record of what concepts have been covered. Often, if children are able to pick books that interest them, they are more likely to be engaged in summer work. There are a variety of versions available, and one highly recommended series is published by Brain Quest.

On-line Resources

Games are always a great way to practice skills, especially those that need to be memorized. Below are several resources that we have found helpful.

IXL.com- The free or paid version are both valuable.

ABCya.com- fun colorful games for all grades

Splash Math- The rising fifth graders will need a username and password to access this site. Please reach out to me via email, if you need this information.

Sheppard Software- exciting and interactive games for all subjects and grade levels.

I hope you have a wonderful summer!

Sincerely,
Michael Commendatore
Fifth Grade Teacher

Name: _____ Date: _____

Cumulative Review

for Chapters 1 and 2

Concepts and Skills

Write each number in standard form. *(Lesson 1.1)*

1. forty-eight thousand, six _____

2. one hundred thousand _____

3. sixty-nine thousand, two hundred eleven _____

Write each number in word form. *(Lesson 1.1)*

4. 53,900 _____

5. 16,658 _____

6. 20,306 _____

Fill in the blank to write the number in expanded form. *(Lesson 1.1)*

7. 13,901 = 10,000 + _____ + 900 + 1

Fill in the blanks. *(Lesson 1.2)*

8. 100 more than 26,542 is _____.

9. _____ is 100 less than 79,023.

Circle the number that is greater. *(Lesson 1.2)*

10. 12,630 or 6,238

11. 45,200 or 45,496

12. 62,529 or 69,522

13. 90,236 or 87,415

Circle the number that is less. *(Lesson 1.2)*

14. 6,563 or 48,200

15. 67,186 or 67,254

16. 74,258 or 71,852

17. 96,125 or 69,521

Write the set of numbers in order from least to greatest. *(Lesson 1.2)*

18. 8,654 56,207 68,543 56,719

_____ _____ _____ _____

Continue or complete each number pattern. *(Lesson 1.2)*

19. 11,500 11,000 10,500 _____ _____

20. 63,800 64,100 64,400 _____ _____

21. 27,852 29,853 _____ 33,855 35,856

Find each sum or difference. Then use rounding to check that your answers are reasonable. *(Lesson 1.3 and 2.1)*

22.
$$\begin{array}{r} 522 \\ -\ 389 \\ \hline \end{array}$$

23.
$$\begin{array}{r} 456 \\ +\ 790 \\ \hline \end{array}$$

24.
$$\begin{array}{r} 4,562 \\ -\ 673 \\ \hline \end{array}$$

Name: _____ Date: _____

Find each sum or difference. Then use front-end estimation to check that your answers are reasonable. *(Lesson 1.3 and 2.1)*

25. $1,376 + 3,428$

26. $7,496 - 829$

27. $432 + 759$

Find each product. Then use rounding to check that your answers are reasonable. *(Lesson 2.1 and 2.4)*

28. 383×2

29. 241×4

30. 752×5

Find each product. Then use front-end estimation to check that your answers are reasonable. *(Lesson 2.1 and 2.4)*

31. 308×3

32. 126×5

33. 415×4

Find each quotient. Then use related multiplication facts to check that your answers are reasonable. *(Lesson 2.1)*

34. $4\overline{)92}$

35. $3\overline{)78}$

36. $4\overline{)68}$

Find the factors of each number. *(Lesson 2.2)*

35. 36 _____

36. 40 _____

37. 96 _____

Find the common factors of each pair of numbers. *(Lesson 2.2)*

38. 36 and 40

_____

39. 40 and 96

_____

Find the greatest common factor of each pair of numbers. *(Lesson 2.2)*

40. 30 and 16

_____

41. 48 and 18

_____

Find the prime and composite numbers. *(Lesson 2.2)*

47	31	92	63	57	135

42. The prime numbers are _____.

43. The composite numbers are _____.

Name: _____ **Date:** _____

List the first eight multiples of each number. *(Lesson 2.3)*

44. 4 _____

45. 6 _____

46. 9 _____

Find the first two common multiples of each pair of numbers. *(Lesson 2.3)*

47. 4 and 6 _____

48. 6 and 9 _____

Find the least common multiple of each pair of numbers. *(Lesson 2.3)*

49. 8 and 12 _____

50. 27 and 36 _____

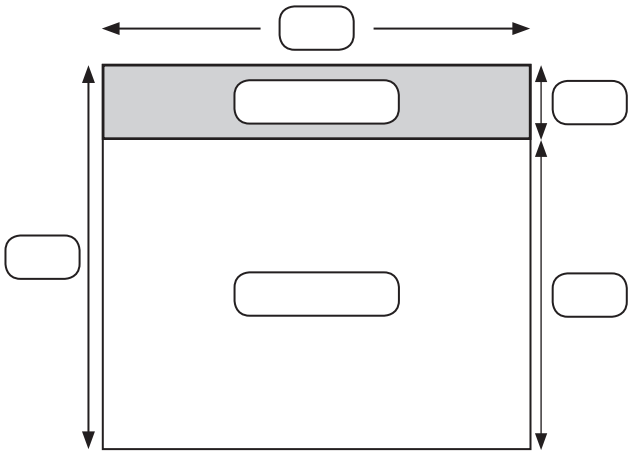
Solve using an array model. *(Lesson 2.4)*

51. $15 \times 7 =$ _____

52. $6 \times 14 =$ _____

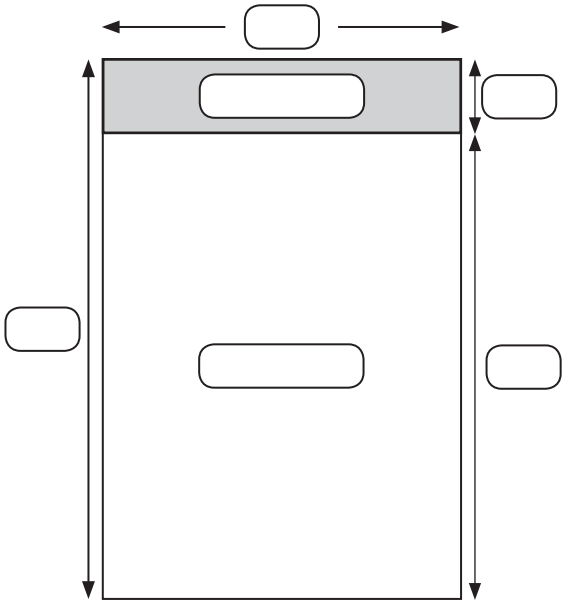
Solve using an area model. *(Lesson 2.4)*

53. 39 × 8 =



$$\begin{array}{r} 39 \\ \times \quad 8 \\ \hline \end{array}$$

54. 56 × 7 =



$$\begin{array}{r} 56 \\ \times \quad 7 \\ \hline \end{array}$$

Name: _____ Date: _____

Problem Solving

Solve. Show your work.

55. Make a 5-digit number using these clues.
The digit in the thousands place is 5.
The value of the digit in the ten thousands place is 20,000.
The digit in the tens place is 8.
One of the digits is a 0 and it is next to the digit 8.
The digit in the ones place is 2 less than the digit in the tens place.
The number is ☐☐,☐☐☐.

56. 3,219 milliliters of water and 185 milliliters of orange syrup are mixed to make orange juice. About how much orange juice will there be?

57. An empty parking lot has 300 spaces.
215 cars and 89 SUVs drive into the parking lot.
How many vehicles do not have parking spaces?

58. Find a 2-digit number less than 50 using these clues.
It can be divided by 4 exactly.
When 4 is added to it, it can be divided by 5 exactly.

The number is _____.

59. Finch divides 12 peaches and 18 nectarines into the same number of equal groups. How many possible groups of each fruit can he make? How many are in each group?

Name: _____ Date: _____

Chapter 3

Whole Number Multiplication and Division

Practice 1 Multiplying by a 1-Digit Number

Multiply 962 by 6 and find the missing numbers.

Example

Step 1 2 ones × 6 = 12 ones

= 1 ten 2 ones

$$\begin{array}{r} 2 \\ \times\ 6 \\ \hline 1\,2 \end{array}$$

1. Step 2 6 tens × 6 = _____ tens

= _____ hundreds _____ tens

$$\begin{array}{r} 6\,0 \\ \times\ 6 \\ \hline \end{array}$$

2. Step 3 9 hundreds × 6 = _____ hundreds

= _____ thousands _____ hundreds

$$\begin{array}{r} 9\,0\,0 \\ \times\ \ \ 6 \\ \hline \end{array}$$

3.

$$\begin{array}{r} 9\ \ 6\ \ 2\,6 \\ \times \\ \hline \end{array}$$

□□ ← 2 ones × 6

□□□ ← 6 tens × 6

□,□□□ ← 9 hundreds × 6

□,□□□

Multiply 9,086 by 7 and find the missing numbers.

4. Step 1 6 ones × 7 = _____ ones

= _____ tens _____ ones

$$\begin{array}{r} 6 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

5. Step 2 _____ tens × 7 = _____ tens

= _____ hundreds _____ tens

$$\begin{array}{r} \square 0 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

6. Step 3 _____ hundreds × 7 = _____ hundreds

$$\begin{array}{r} \square 00 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

7. Step 4 _____ thousands × 7 = _____ thousands

= _____ ten thousands _____ thousands

$$\begin{array}{r} \square,000 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

8.

$$\begin{array}{r} 9,086 \\ \times\ 7 \\ \hline \square\square\square\square\square \\ \square\square\square\square\square \\ \square\square\square\square\square \\ \square\square,\square\square\square \\ \hline \square\square,\square\square\square \end{array}$$

← 6 ones × 7

← 8 tens × 7

← 0 hundreds × 7

← 9 thousands × 7

Name: _____ **Date:** _____

Multiply.

Example

$$\begin{array}{r} 9\,1\,2 \\ \times\quad 3 \\ \hline 2,7\,3\,6 \end{array}$$

9.

$$\begin{array}{r} 6\,0\,5 \\ \times\quad 5 \\ \hline \square,\square\,\square\,\square \end{array}$$

10.

$$\begin{array}{r} 2,1\,3\,4 \\ \times\quad 6 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

11.

$$\begin{array}{r} 6,9\,2\,0 \\ \times\quad 4 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

12.

$$\begin{array}{r} 2,0\,1\,9 \\ \times\quad 7 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

13.

$$\begin{array}{r} 1,4\,7\,4 \\ \times\quad 6 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

14.

$$\begin{array}{r} 8,5\,7\,2 \\ \times\quad 8 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

15.

$$\begin{array}{r} 6,0\,0\,3 \\ \times\quad 9 \\ \hline \square,\square\,\square\,\square\,\square \end{array}$$

Find each product. Then solve the riddle.

Example

425 × 6 = 2,550 (v)

16. 964 × 8 = _____ (a)

17. 682 × 5 = _____ (r)

18. 1,685 × 3 = _____ (w)

19. 1,936 × 4 = _____ (d)

20. 3,270 × 3 = _____ (e)

How do you say good-bye to the ocean?
Match the letters to the answers below to find out.

You _____ _____ v _____ _____.

5,055 7,712 2,550 9,810

Name: _____ Date: _____

Practice 2 Multiplying by a 2-Digit Number

Write the missing numbers. Then solve the riddle.

Example

15 × 10 = 150 (r) 63 × 10 = 630 (e)

1. 5 × 60 = 5 × _____ tens
= _____ tens
= _____ (n)

2. 16 × 20 = 16 × _____ tens
= _____ tens
= _____ (i)

3. 33 × 40 = 33 × _____ tens
= _____ tens
= _____ (l)

4. 29 × 30 = 29 × _____ tens
= _____ tens
= _____ (u)

5. 41 × 60 = 41 × _____ × 10
= _____ × 10
= _____ (B)

6. 96 × 40 = 96 × _____ × 4
= _____ × 4
= _____ (j)

7. 618 × 50
= 618 × _____ × 10
= _____ × 10
= _____ (o)

8. 752 × 70
= 752 × _____ × 7
= _____ × 7
= _____ (d)

What is the French word that has the same meaning as 'hello'?
Match the letters to the products below to find out.

2,460	30,900	300	3,840	30,900	870	150

Find each product.

9. $42 \times 10 =$ _____

10. $786 \times 10 =$ _____

11. $16 \times 5 =$ _____

$16 \times 50 =$ _____

12. $137 \times 6 =$ _____

$137 \times 60 =$ _____

13. $23 \times 4 =$ _____

$23 \times 40 =$ _____

14. $405 \times 9 =$ _____

$405 \times 90 =$ _____

Find each product.

15. 70×800

$7 \times 8 =$ _____

$7 \times 80 =$ _____

$7 \times 800 =$ _____

So, $70 \times 800 =$ _____.

16. 300×90

_____

_____

_____

_____

Name: _____ Date: _____

Multiply. Find the missing numbers.

Example

		6	7
×		3	5
	3	3	5
2,	0	1	0
2,	3	4	5

17.

		6	1
×		8	6
	□	□	□
□,	□	□	□
□,	□	□	□

18.

			8	7	2
	×			7	6
	□,	□	□	□	
□	□,	□	□	□	
□	□,	□	□	□	

19.

			7	0	9
	×			0	9
	□,	□	□	□	
□	□,	□	□	□	
□	□,	□	□	□	

Estimate each product. Round each number to its greatest place value.

Example

67 × 35 is about 70 × 40.
70 × 40 = 2,800

20. 61 × 86 is about _____ × _____.

_____ × _____ = _____

21. 872 × 62 is about _____ × _____.

_____ × _____ = _____

22. 709 × 49 is about _____ × _____.

_____ × _____ = _____

Multiply. Then estimate to check that your answers are reasonable. Round each number to its greatest place value.

Example

$14 \times 18 =$ 252

$$\begin{array}{r} 14 \\ \times\ 18 \\ \hline 112 \\ 140 \\ \hline 252 \end{array}$$

14 is about 10.
18 is about 20.
Estimate:
$10 \times 20 = 200$

252 is close to 200. So, the answer is reasonable.

23. $48 \times 21 =$ _____

24. $196 \times 34 =$ _____

25. $608 \times 73 =$ _____

26. $721 \times 54 =$ _____

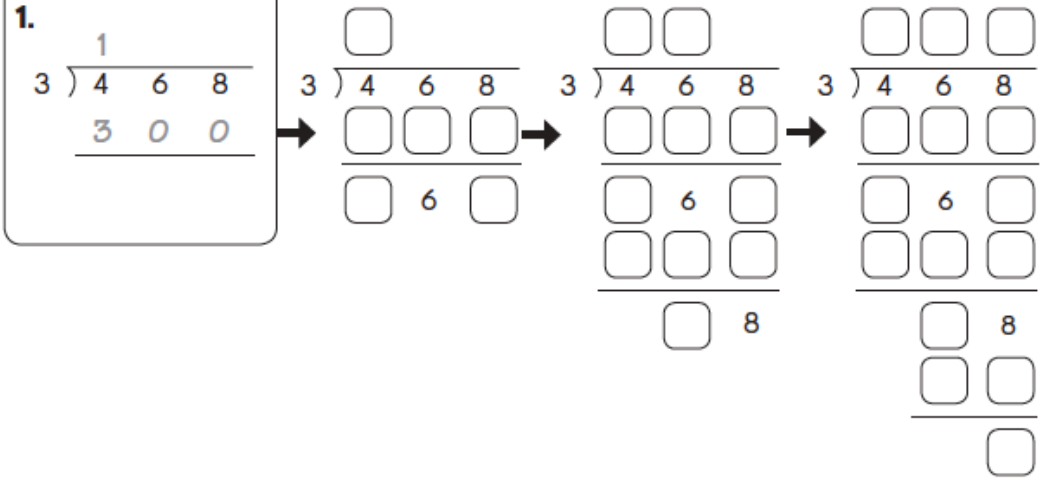
Name: _____ Date: _____

Practice 3 Modeling Division with Regrouping

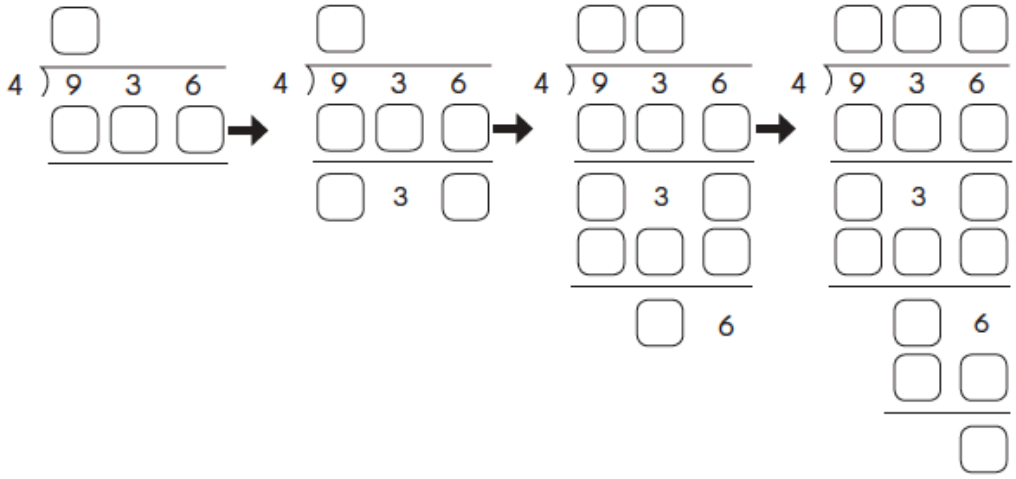
Lisa cannot remember the steps to divide.
Help her complete the steps.

Example

1.



2.



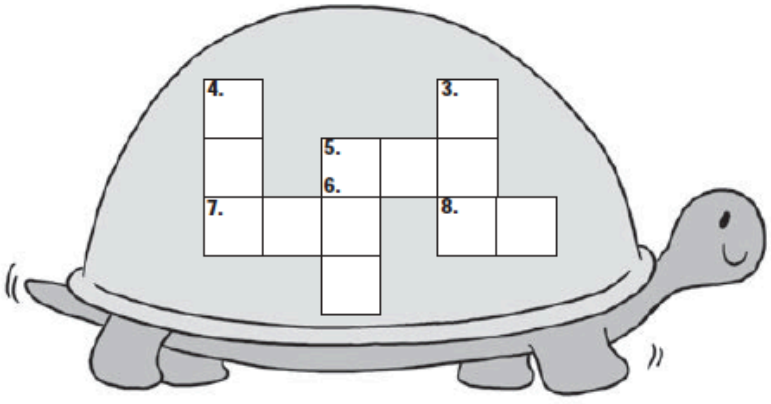
Divide. Then use the quotients to complete the number puzzle.

Down

3. $2\overline{)798}$ **4.** $3\overline{)849}$ **5.** $4\overline{)696}$

Across

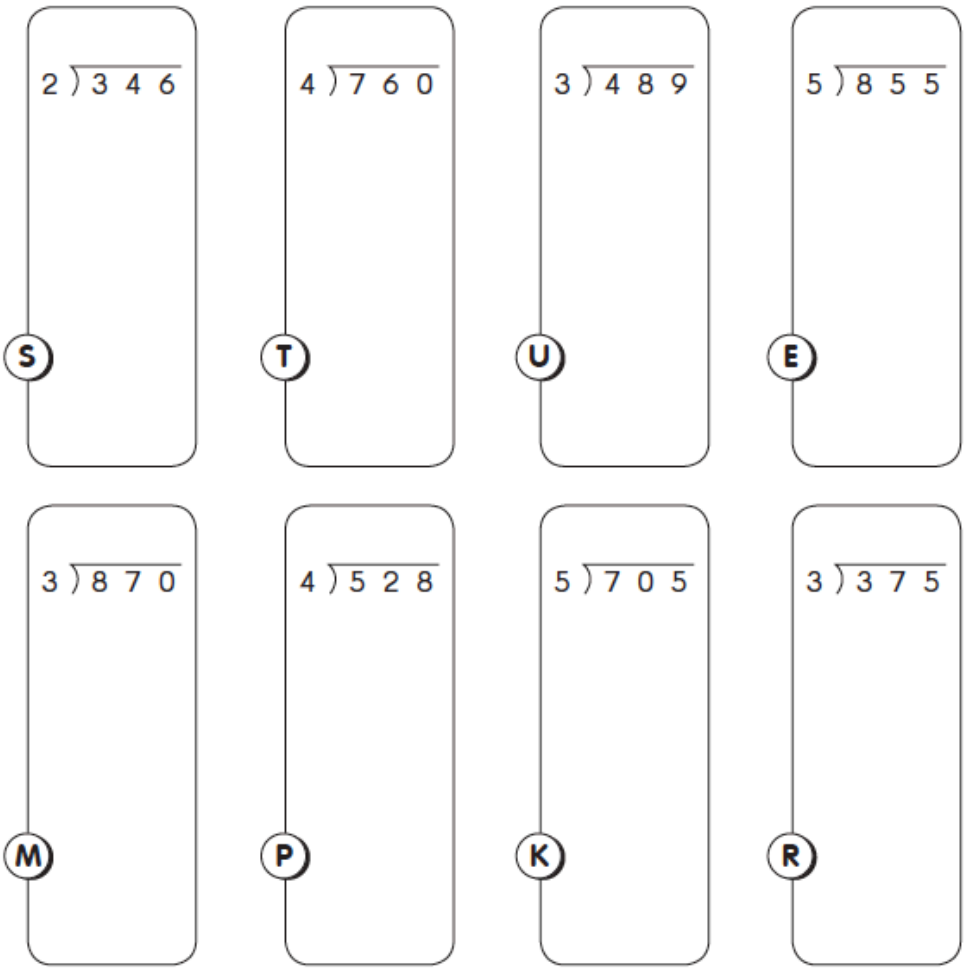
6. $5\overline{)695}$ **7.** $2\overline{)754}$ **8.** $4\overline{)372}$



Name: _____ **Date:** _____

Divide. Then solve the riddle.

9.



Which pet makes the loudest noise?
Match the letters to the quotients below to find out.

190	125	163	290	132	171	190

Divide.

10. 516 ÷ 2 = _____

11. 144 ÷ 3 = _____

12. 396 ÷ 4 = _____

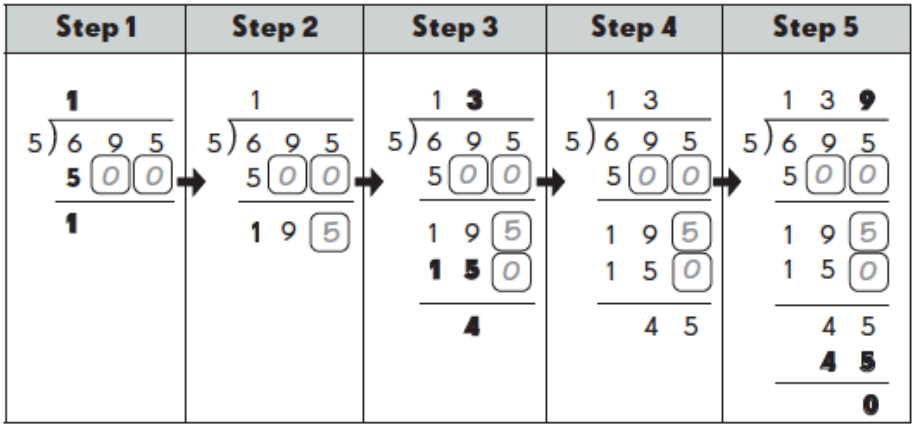
13. 885 ÷ 5 = _____

Name: _____ Date: _____

Look at the steps for dividing a 3-digit number by a 1-digit number.

Example

This shows the steps in division.



Write a number for each instruction box to match the instruction with the correct step for division. The first one has been done for you.

Divide the hundreds by 5. Step 1

Divide the ones by 5. Step

Divide the tens by 5. Step

Regroup the remaining hundreds. Add the tens and ones. Step

Regroup the remaining tens. Add the ones. Step

Complete the division.

14.

Step 1	Step 2	Step 3	Step 4	Step 5
$4\overline{)752}$ →	$4\overline{)752}$ →	$4\overline{)752}$ →	$4\overline{)752}$ →	$4\overline{)752}$

Then write the steps, using the exercise on page 53 as a guide.

Step 1 _____

_____

Step 2 _____

_____

Step 3 _____

_____

Step 4 _____

_____

Step 5 _____

_____

Name: _____ Date: _____

Practice 4 Dividing by a 1-Digit Number

Fill in the blanks to find each quotient.

Example

4,900 ÷ 7 = 49 hundreds ÷ 7

= 7 hundreds

= 700

1. 6,000 ÷ 3 = _____ thousands ÷ 3

= _____ thousands

= _____

2. 8,000 ÷ 2 = _____ thousands ÷ 2

= _____ thousands

= _____

3. 2,400 ÷ 6 = _____ hundreds ÷ 6

= _____ hundreds

= _____

Estimate each quotient.

4. 64 ÷ 3 is about _____ ÷ 3

= _____

5. 448 ÷ 9 is about _____ ÷ 9

= _____

6. 763 ÷ 4 is about _____ ÷ 4

= _____

7. 127 ÷ 5 is about _____ ÷ 5

= _____

Divide and find the missing numbers.

Example

$$\begin{array}{r} 213 \\ 3\overline{)639} \\ -600 \\ \hline 39 \\ -30 \\ \hline 9 \\ -9 \\ \hline 0 \end{array}$$

8.

$$\begin{array}{r} \square\square\square \\ 9\overline{)927} \\ -\square\square\square \\ \hline 2\square \\ -\square\square \\ \hline \square\square \\ -\square\square \\ \hline \square \end{array}$$

9.

$$\begin{array}{r} \square,\square\square\square \\ 2\overline{)6,480} \\ -\square,\square\square\square \\ \hline 4\square\square \\ -\square\square\square \\ \hline 8\square \\ -\square\square \\ \hline 0\square \\ -\square \\ \hline \square \end{array}$$

10.

$$\begin{array}{r} \square\square\square \\ 7\overline{)2,184} \\ -\square,\square\square\square \\ \hline \square\square \\ -\square\square \\ \hline \square\square \\ -\square\square \\ \hline \square \end{array}$$

Name: _____ Date: _____

Divide. Then estimate to check that your answers are reasonable.

Example

$$\begin{array}{r} 699 \\ 9\overline{)6,291} \\ -\ 5,400 \\ \hline 891 \\ -\ 810 \\ \hline 81 \\ -\ 81 \\ \hline 0 \end{array}$$

Estimate:

6,291 is about 6,300.

6,300 ÷ 9 = 700

11. $4\overline{)3,620}$

Estimate:

_____

_____

12. $7\overline{)2,807}$

Estimate:

_____

_____

13. $6\overline{)1,842}$

Estimate:

_____

_____

Find each quotient. Then estimate to check that your answers are reasonable.

Example

1,144 ÷ 9 = 127 R 1

```
      1  2  7 R1
9 ) 1, 1  4  4
    9  0  0
    ---------
       2  4  4
       1  8  0
       -------
          6  4
          6  3
          ----
             1
```

Estimate: 1,144 ÷ 9 is about 900 ÷ 9 = 100. The answer 127 R 1 is reasonable.

14. 6,514 ÷ 4 = _____ R _____

15. 1,340 ÷ 7 = _____ R _____

16. 9,346 ÷ 8 = _____ R _____

Name: _____ Date: _____

Practice 5 Real-World Problems: Multiplication and Division

Solve. Show your work.

Example

A company has 4,059 people. Their names are listed in alphabetical order and then divided into groups of 5.

How many groups of 5 names are there and how many names are left?

4,059 ÷ 5 = 811 R 4
There are 811 groups of 5 names,
and 4 names are left.

If the number of men in the company is 600 times the number of names left, how many men are there in the company?

600 × 4 = 2,400
There are 2,400 men in the company.

1. Factory A produces 326 sweaters in a day. Factory B produces 107 more sweaters a day than Factory A.

a. How many sweaters does Factory B produce in a day?

b. How many sweaters do the two factories produce in 68 days?

2. In her shop, Lee had a piece of fabric measuring 150 meters. A customer asked her to sew 10 cushion covers, each requiring 3 meters of fabric. Another customer bought 21 meters of the same fabric. How much fabric does Lee have left?

3. A bakery produces 3,000 loaves of bread.
The bread is delivered to 75 stores.
Of the 75 stores, 67 receive 2,000 loaves of bread altogether.
The remaining stores receive an equal number of loaves of bread.
How many loaves does each of the remaining stores receive?

Name: _____ Date: _____

4. Kamala had 5,026 grams of flour in a canister. She bought a 4,157-gram bag of flour. She poured some flour from the bag to the canister. As a result, the mass of the flour in the canister is now twice the mass of the flour left in the bag. How much flour is in the bag now?

5. Mr. Shea saved $2,500 in April. His monthly salary is twice the amount he saved in April. In May, he saved a certain amount of money. He spent $4,200 more than the amount he saved.

a. How much is his monthly salary?

b. How much did he save in May?

Example

Before lunch, Cindy packed 850 oranges, and Glen packed 470 fewer oranges than Cindy. Glen went home after lunch, but Cindy went back to work. That afternoon, Cindy packed 3 times as many oranges as Glen had packed in the morning.

a. How many oranges did Glen pack?

Let s represent the number of oranges Glen packed.

$850 - 470 = s$

$s = 380$

Glen packed 380 oranges.

b. How many oranges did Cindy pack altogether?

Let t represent the number of oranges Cindy packed.

$t = 3 \times 380 + 850$

$= 1{,}140 + 850$

$= 1{,}990$

Cindy packed 1,990 oranges.

c. Cindy packed the oranges in bags of 5.
How many bags of oranges did Cindy pack?

Let u represent the number of bags Cindy packed.

$1{,}990 \div 5 = u$

$u = 398$

Cindy packed 398 bags.

Use different letters to represent the unknown numbers. Then solve.

6. Ms. Edstrom has a budget of $1,500 to spend on a table and 6 chairs.
The total price is $249 under her budget amount.
The table costs 3 times as much as a chair.
What is the price of the table?

Name: _____ **Date:** _____

7. Amy has $510. Josephine has $160 less than Amy and $65 more than Ben. Ben used all his money to buy some books for $9 each.

a. How much does Josephine have?

b. How much money does Ben have?

c. How many books did Ben buy?

d. How much does he have left?

8. Lindsay and Menon have 1,240 stickers. Menon has 4 times as many stickers as Lindsay. Menon decides to have 6 stickers on each page of an album.

a. How many stickers does Menon have?

b. After Menon fills some pages in the album, how many stickers are left over?

c. How many stickers does he need to complete one more page?

Name: _____ Date: _____

Math Journal

Look at each problem. Use estimation to explain why the answers are not reasonable.

Example

5,268 × 8 = 2,144

Explain.

5,268 is about 5,000

5,000 × 8 = 40,000.

So the answer is too small.

1. 725 × 6 = 700

Explain.

_____

_____

_____

2. 497 × 21 = 1,291

Explain.

_____

_____

_____

Use estimation to explain why the answer is not reasonable.

3. 6,021 ÷ 3 = 207

Explain.

_____

_____

_____

Solve. Show your work.

4. Look at the number sentence.

72 ÷ 6 = 12

How would you use this to find the missing quotient?

7,200 ÷ 6 = ☐

_____

_____

_____

Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

Charlie has 1,243 stamps. He gives away 12 stamps. His father gives him 415 stamps. He divides as many stamps as possible equally among 4 albums.

1. How many stamps did he place in each album?

2. Based on your answer in **Exercise 1**, how many stamps are left over?

Put On Your Thinking Cap!

Problem Solving

1. The cost of 2 televisions and 3 DVD players is $1,421.
The cost of 1 DVD player is half the cost of 1 television.
What is the cost of 1 television?

Name: _____ Date: _____

Chapter 6

Fractions and Mixed Numbers

Practice 1 Adding Fractions

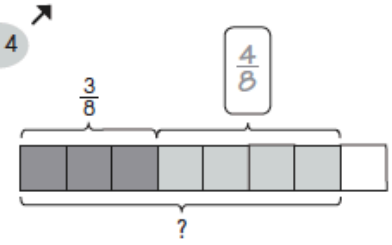
Find the equivalent fraction. Complete the model. Then add.

Example

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

$= \frac{7}{8}$

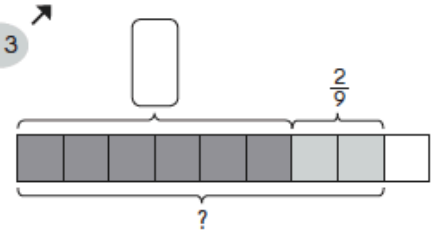
$\frac{1}{2} = \frac{4}{8}$ (× 4)



1. $\frac{2}{3} + \frac{2}{9} = \frac{\square}{\square} + \frac{\square}{\square}$

$= \square$

$\frac{2}{3} = \frac{\square}{\square}$ (× 3)



Add. Write each answer in simplest form.

2. $\frac{3}{5} + \frac{3}{10} = \frac{\square}{\square} + \frac{\square}{\square}$

$= \frac{\square}{\square}$

3. $\frac{5}{12} + \frac{1}{3} = \frac{\square}{\square} + \frac{\square}{\square}$

$= \frac{\square}{\square}$

$= \frac{\square}{\square}$

4. Find the sum of $\frac{1}{6}$ and $\frac{1}{12}$.

5. Add $\frac{1}{4}$ to the answer in **Exercise 4**.

6. What is the sum of $\frac{1}{8}$, $\frac{1}{4}$, and $\frac{3}{8}$?

7. Add $\frac{1}{3}$, $\frac{3}{12}$, and $\frac{5}{12}$.

Name: _____ Date: _____

Practice 2 Subtracting Fractions

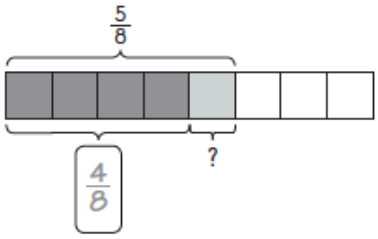
Find the equivalent fraction. Complete the model. Then subtract.

Example

$\frac{5}{8} - \frac{1}{2} = \frac{5}{8} - \frac{4}{8}$

$= \frac{1}{8}$

$\frac{1}{2} = \frac{4}{8}$ (× 4 above, × 4 below)

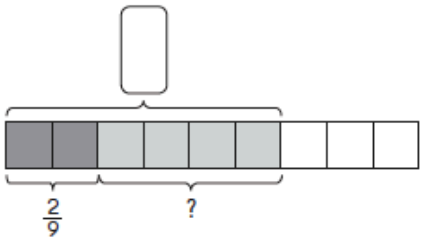


1.

$\frac{2}{3} - \frac{2}{9} = \frac{\square}{\square} - \frac{\square}{\square}$

$= \frac{\square}{\square}$

$\frac{2}{3} = \frac{\square}{\square}$ (× 3 above, × 3 below)



Subtract. Write each answer in simplest form.

2. $\frac{8}{10} - \frac{1}{5} = \frac{\square}{\square} - \frac{\square}{\square}$

$= \frac{\square}{\square}$

$= \frac{\square}{\square}$

3. $\frac{7}{12} - \frac{1}{4} = \frac{\square}{\square} - \frac{\square}{\square}$

$= \frac{\square}{\square}$

$= \frac{\square}{\square}$

4. The difference between $\frac{7}{8}$ and $\frac{1}{4}$ is $\square$.

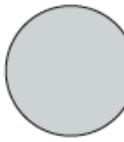
5. The difference between $\frac{7}{12}$ and $\frac{1}{3}$ is $\square$.

Name: _____ Date: _____

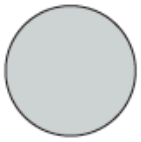
Practice 3 Mixed Numbers

Write a mixed number for each model.

Example

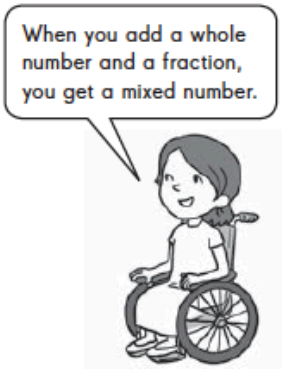


1 whole



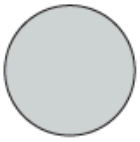
1 whole

1 half

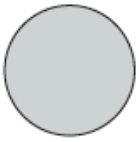


$2 + \frac{1}{2} = 2\frac{1}{2}$

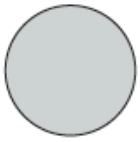
1.



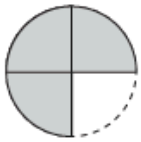
1 whole



1 whole



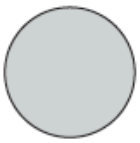
1 whole



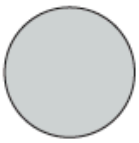
3 fourths

$3 + \frac{3}{4} =$ ☐

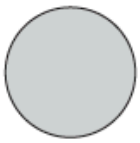
2.



1 whole



1 whole



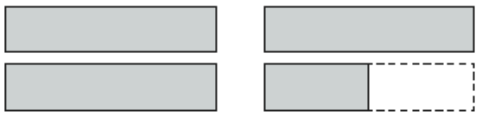
1 whole

2 fifths

$3 + \frac{2}{5} =$ ☐

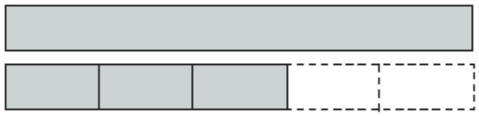
Write a mixed number for each model.

3.



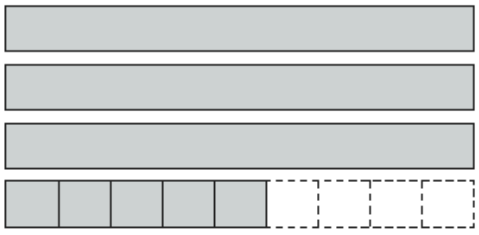
☐ wholes and ☐ half is ☐.

4.



☐ whole and ☐ fifths is ☐.

5.

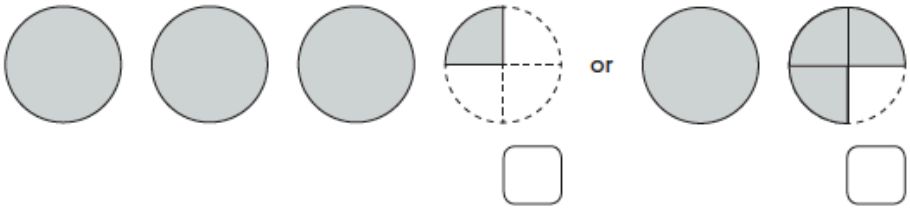


☐ wholes and ☐ ninths is ☐.

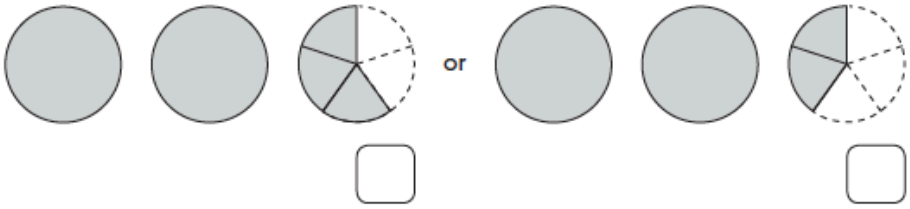
Name: _____ Date: _____

Check (✔) the correct model.

6. Which model shows $1\frac{3}{4}$ shaded?



7. Which model shows $2\frac{3}{5}$ shaded?



Write each answer as a mixed number.

8. $4 + \frac{1}{4} =$ ☐

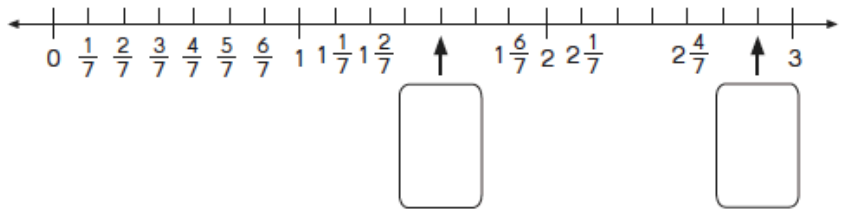
9. $3 + \frac{5}{9} =$ ☐

10. $\frac{5}{8} + 2 =$ ☐

11. $\frac{3}{5} + 4 =$ ☐

Write the correct mixed number in each box.

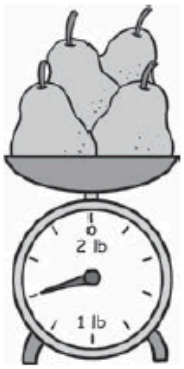
12.



Write a mixed number for each item.

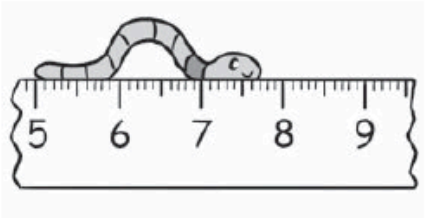
13. The pears have a weight of

pounds.



14. The worm started crawling from 0 centimeters.

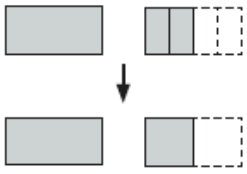
It has crawled centimeters.



Name: _____ Date: _____

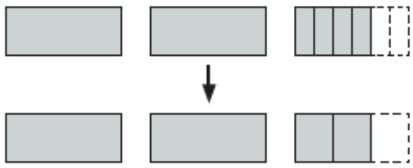
Write each mixed number in simplest form.

Example



$1\frac{2}{4} = 1\frac{1}{2}$

15.



$2\frac{4}{6} =$ ☐

16. $3\frac{4}{8} =$ ☐

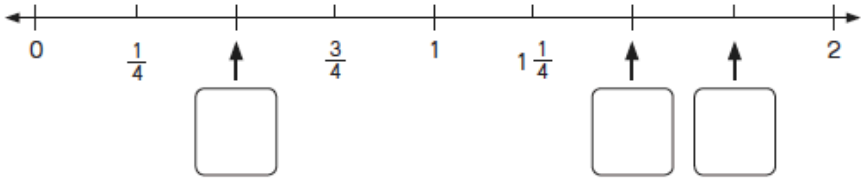
17. $5\frac{6}{9} =$ ☐

18. $6\frac{4}{12} =$ ☐

19. $4\frac{3}{6} =$ ☐

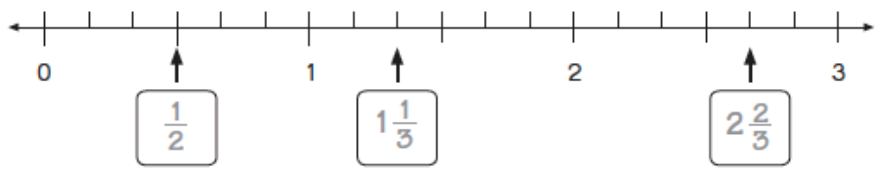
Write each fraction and mixed number in a box to show its correct location on the number line.

20. $1\frac{1}{2}$ **21.** $\frac{1}{2}$ **22.** $1\frac{3}{4}$

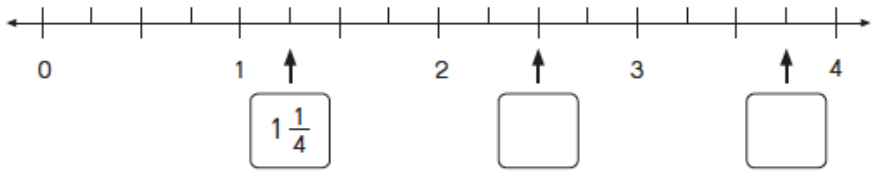


Fill in the boxes with fractions or mixed numbers.
Express each answer in simplest form.

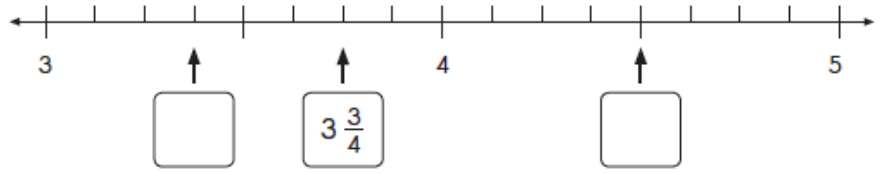
Example



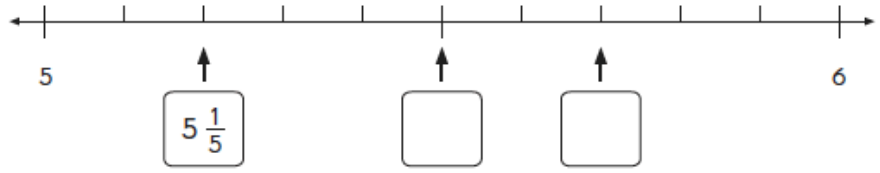
23.



24.



25.



Name: _____ Date: _____

Practice 4 Improper Fractions

Write each mixed number as an improper fraction.

Example

$1\frac{2}{3}$

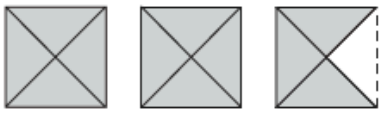
$1 = \underline{3}$ thirds

$\frac{2}{3} = \underline{2}$ thirds

$1\frac{2}{3} = \underline{5}$ thirds

$= \frac{5}{3}$

1.



$2\frac{3}{4}$

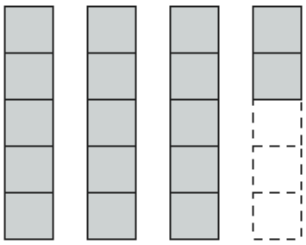
$2 = \_\_\_\_$ fourths

$\frac{3}{4} = \_\_\_\_$ fourths

$2\frac{3}{4} = \_\_\_\_$ fourths

$= \square$

2.



$3\frac{2}{5}$

$3 = \_\_\_\_$ fifths

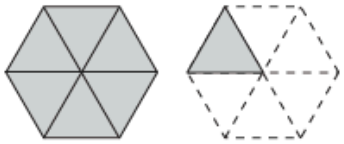
$\frac{2}{5} = \_\_\_\_$ fifths

$3\frac{2}{5} = \_\_\_\_$ fifths

$= \square$

Write the improper fractions for the shaded parts.

3.



There are _____ sixths in $1\frac{1}{6}$.

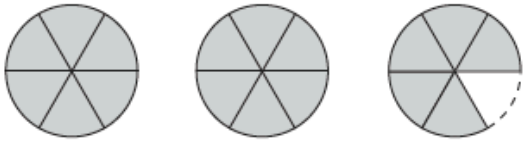
$1\frac{1}{6} = \square + \square + \square + \square + \square + \square + \square$

$= \square$

4.

$2\frac{3}{8} = \square$

5.

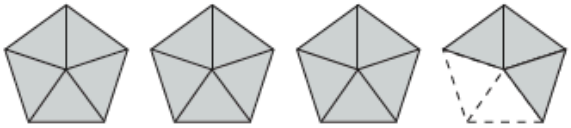


$2\frac{5}{6} = \square$

Name: _____ Date: _____

Write the improper fraction for the shaded parts.

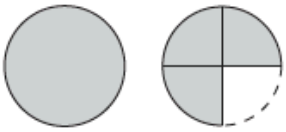
6.



$3\frac{3}{5} = \square$

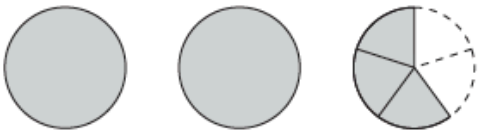
Write a mixed number and an improper fraction for each model.

Example



Mixed number: $1\frac{3}{4}$ Improper fraction: $\frac{7}{4}$

7.



Mixed number: ☐ Improper fraction: ☐

8.

Mixed number: ☐ Improper fraction: ☐

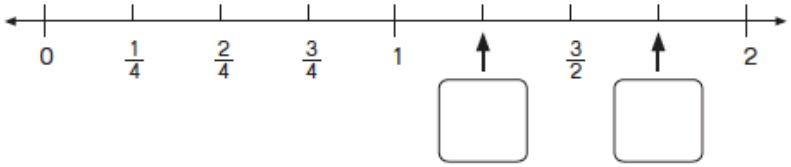
Write a mixed number and an improper fraction for each model.

9.

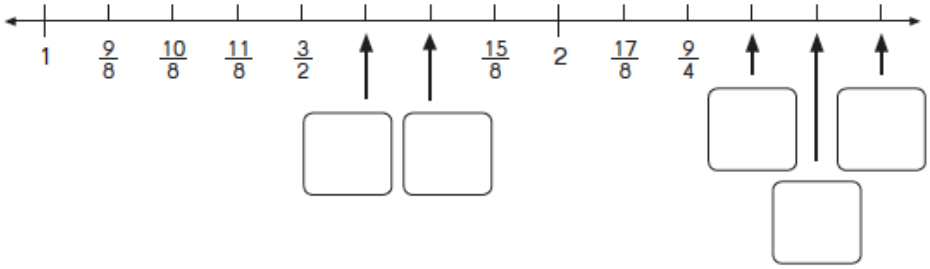
Mixed number: ☐ Improper fraction: ☐

Write the missing improper fraction in each box.
Express the answers in simplest form.

10.

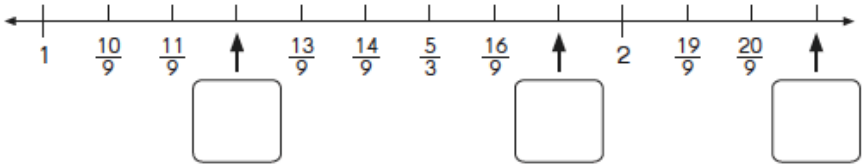


11.



Write each improper fraction in a box to show its correct location on the number line.

12. $\frac{4}{3}$ **13.** $\frac{7}{3}$ **14.** $\frac{17}{9}$



Name: _____ Date: _____

Practice 5 Renaming Improper Fractions and Mixed Numbers

Express each improper fraction as a mixed number.

Example

$\frac{8}{5} = \frac{5}{5} + \frac{3}{5}$

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

$= 1\frac{3}{5}$

1. $\frac{12}{7} = \frac{\square}{7} + \frac{\square}{7}$

$= 1 + \frac{\square}{7}$

$= 1\frac{\square}{7}$

2. $\frac{9}{4} = \frac{\square}{4} + \frac{\square}{4}$

$= 2 + \frac{\square}{4}$

$= 2\frac{\square}{4}$

3. $\frac{13}{6} = \frac{\square}{6} + \frac{\square}{6}$

$= 2 + \frac{\square}{6}$

$= 2\frac{\square}{6}$

Express each improper fraction as a mixed number.

Example

$\frac{9}{2} = \boxed{4\frac{1}{2}}$

$2\overline{)9}$ R 1, 4

Use the division rule.
9 ÷ 2 = 4 R 1

4. $\frac{17}{4} = \square$

5. $\frac{29}{6} = \square$

Express each improper fraction as a whole number or a mixed number in simplest form. Show your work.

6. $\frac{9}{6} = \square + \square$

$= \square + \square$

$= \square$

$= \square$

7. $\frac{12}{4} = \square$

8. $\frac{21}{3} = \square$

9. $\frac{14}{4} = \square$

$= \square$

10. $\frac{15}{6} = \square$

$= \square$

Name: _____ Date: _____

Express each mixed number as an improper fraction.

Example

$2\frac{3}{5} = \boxed{2} + \frac{3}{5}$

$= \frac{\boxed{10}}{5} + \frac{3}{5}$

$= \frac{\boxed{13}}{5}$

11. $3\frac{5}{9} = 3 + \frac{\square}{9}$

$= \frac{\square}{9} + \frac{\square}{9}$

$= \frac{\square}{9}$

12. $2\frac{5}{8} = \square + \frac{5}{8}$

$= \frac{\square}{8} + \frac{5}{8}$

$= \frac{\square}{8}$

13. $4\frac{2}{7} = 4 + \frac{\square}{7}$

$= \frac{\square}{7} + \frac{\square}{7}$

$= \frac{\square}{7}$

Express each mixed number as an improper fraction.

Example

$2\frac{1}{5} = \frac{11}{5}$

Use the multiplication rule:
$2 \times 5 = 10$
$10 + 1 = 11$
There are 11 fifths in $2\frac{1}{5}$.

14. $2\frac{3}{8} = \square$

15. $3\frac{3}{4} = \square$

16. $6\frac{2}{5} = \square$

17. $2\frac{4}{7} = \square$

Express each mixed number as an improper fraction and each improper fraction as a mixed or whole number. Then solve the riddle.

18. $\frac{9}{7} = \square$ (b)

19. $\frac{15}{6} = \square$ (o)

20. $\frac{14}{7} = \square$ (a)

21. $2\frac{2}{7} = \square$ (i)

22. $3\frac{5}{8} = \square$ (t)

23. $5\frac{3}{5} = \square$ (r)

Which two animals can look behind without turning their heads?
Write the letters which match the answers to find out.

P

2	$\frac{28}{5}$	$\frac{28}{5}$	$2\frac{1}{2}$	$\frac{29}{8}$

and

$\frac{28}{5}$	2	$1\frac{2}{7}$	$1\frac{2}{7}$	$\frac{16}{7}$	$\frac{29}{8}$

Name: _____ Date: _____

Practice 6 Renaming Whole Numbers when Adding and Subtracting Fractions

Fill in the missing numerators.

Example

$3 = 2\frac{4}{4} = 1\frac{8}{4} = \frac{12}{4}$

1. $3 = 2\frac{\square}{6} = 1\frac{\square}{6} = \frac{\square}{6}$

2. $2\frac{7}{9} = 1\frac{\square}{9} = \frac{\square}{9}$

Add. Express each answer as a mixed number in simplest form.

3. $\frac{4}{9} + \frac{2}{3}$

4. $\frac{1}{6} + \frac{11}{12}$

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

6. $\frac{4}{5} + \frac{7}{10} + \frac{9}{10}$

Subtract. Express each answer as a mixed number in simplest form.

Example

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

Method 1

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

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

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

Method 2

$2\ \frac{1}{3}\quad 1\frac{3}{3}\quad \frac{1}{3}$

$1\frac{2}{3}$

7. $3 - \frac{5}{6} - \frac{1}{3}$

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

9. $2 - \frac{2}{7} - \frac{3}{14}$

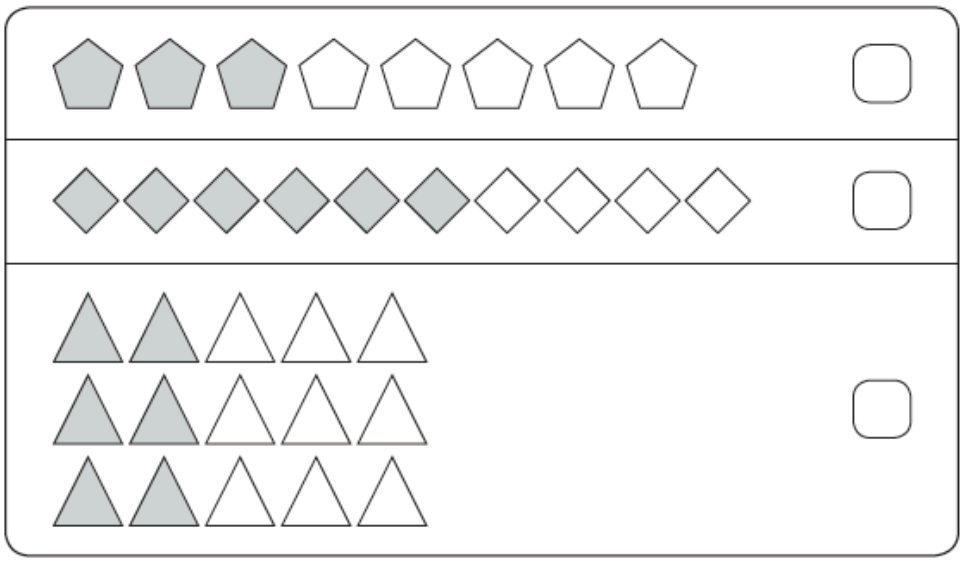
10. $3 - \frac{7}{10} - \frac{3}{5}$

Name: _____ Date: _____

Practice 7 Fraction of a Set

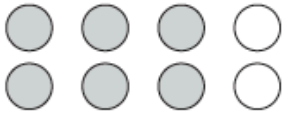
Check (✓) the box next to the group of shapes that show $\frac{3}{5}$ shaded.

1.



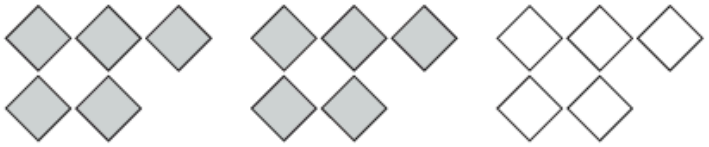
What fraction of each set of shapes is shaded? Express your answer in simplest form.

Example



$\frac{3}{4}$

2.



3.

Use a model to help you answer each question.

Example

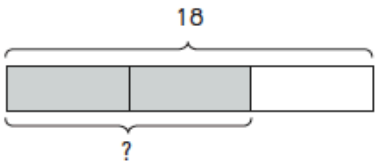
What is $\frac{2}{3}$ of 18?

3 units → 18

1 unit → 6

2 units → 12

So, $\frac{2}{3}$ of 18 = 12.



4. What is $\frac{3}{4}$ of 16?

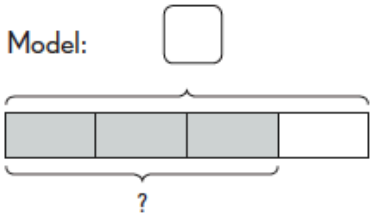
4 units → _____

1 unit → _____

3 units → _____

So, $\frac{3}{4}$ of 16 = _____.

Model:



5. What is $\frac{2}{5}$ of 25?

_____ units → _____

1 unit → _____

_____ units → _____

So, $\frac{2}{5}$ of 25 = _____.

Model:

Name: _____ **Date:** _____

Use a model to help you answer the question.

6. What is $\frac{5}{6}$ of 30?

_____ units → _____ Model :

1 unit → _____

_____ units → _____

So, $\frac{5}{6}$ of 30 = _____.

Solve.

Example

$\frac{2}{3} \times 15$

$\frac{2}{3}$ of 15 is *10*.

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

$\frac{3}{4}$ of 12 is _____.

8. $\frac{2}{5} \times 20$

$\frac{2}{5}$ of 20 is _____.

9. $\frac{6}{7} \times 42$

$\frac{6}{7}$ of 42 is _____.

Fill in the blanks to solve each problem.

Example

$\frac{1}{2}$ of 18 $= \frac{1}{2} \times 18$

$= \frac{1 \times 18}{2}$

$= \frac{18}{2}$

$= 9$

10. $\frac{2}{3}$ of 24 $= \frac{2}{3} \times$ _____

$=$ _____

$=$ _____

$=$ _____

11. $\frac{3}{4}$ of 32 $=$ _____ $\times 32$

$=$ _____

$=$ _____

$=$ _____

Write each answer in the box. Then solve the riddle.

12. $\frac{1}{4} \times 28 =$ ☐ ····· (l)

13. $\frac{2}{3} \times 21 =$ ☐ ····· (o)

14. $\frac{2}{5} \times 50 =$ ☐ ····· (s)

15. $\frac{3}{4} \times 24 =$ ☐ ····· (a)

16. $\frac{5}{6} \times 30 =$ ☐ ····· (a)

17. $\frac{6}{7} \times 35 =$ ☐ ····· (k)

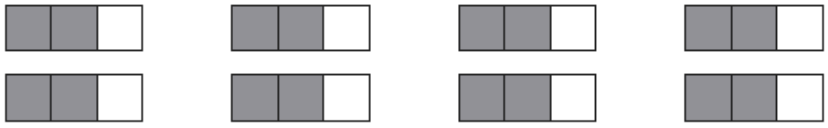
Which animals often sleep about 18 to 20 hours a day?
Write the letters that match the answers to find out.

_____	_____	_____	_____	_____	_____
30	14	25	7	18	20

Name: _____ **Date:** _____

Example

Keigo buys 8 bottles of milk. Each bottle contains $\frac{2}{3}$ pints milk. How much milk is there in the 8 bottles?



$8 \times \frac{2}{3} = \frac{8 \times 2}{3}$ (The unit fraction is $\frac{1}{3}$)

$= \frac{16}{3}$

$= 5\frac{1}{3}$

There is $5\frac{1}{3}$ pints of milk.

Solve. Draw models.

18. Georgina has 9 bags of shaved coconut. Each bag weighs $\frac{1}{2}$ pound. What is the total weight of the bags?

19. Brandon buys 5 cans of paint. He uses $\frac{1}{4}$ gallon of each can of paint. How much paint did he use?

20. A shop sold 3 truck loads of hay. Each truck had $\frac{2}{5}$ ton of hay. How much hay was in the 3 trucks?

Name: _____ **Date:** _____

Example

An egg omelet was cut into 5 equal parts. John and his two friends ate a piece each. What fraction of the omelet did they eat?

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

They ate $\frac{3}{5}$ of the cake.

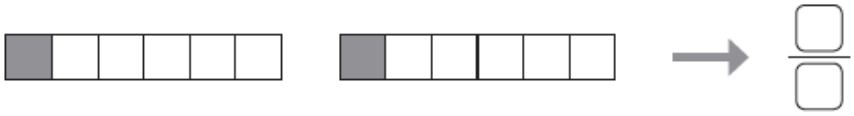
21. A loaf of bread was cut into 10 slices. Jordon, Mandy, Alex, Alving, and Kris ate one piece each. What fraction of the loaf of bread did they eat?

22. A strip of paper was cut into 8 pieces. Some of the pieces were painted. Two of the pieces were painted red and 3 of the pieces were painted green. What fraction of the paper was painted?

Write an addition word problem for the model below.

Solve.

23.



Name: _____ Date: _____

Practice 8 Real-World Problems: Fractions

Solve. Show your work.

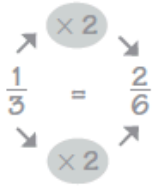
Example

Ali bought three packages of dried fruit.

$\frac{1}{3}$ lb $\frac{1}{3}$ lb $\frac{1}{6}$ lb

What is the total weight of all three packages of dried fruit?

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



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

The total weight of all three packages of dried fruit is $\frac{5}{6}$ pound.

Solve. Show your work.

1. Jim had three waffles.

He ate $\frac{1}{6}$ of one waffle, and $\frac{2}{3}$ of another waffle.

How many waffles were left?

2. A grocery store has 5 pounds granola. One customer buys $\frac{2}{3}$ pound granola and another buys $\frac{5}{6}$ pound.

After these purchases, how much granola is left?

Name: _____ **Date:** _____

3. Karen jogs $\frac{1}{2}$ mile. Selma jogs $\frac{1}{4}$ mile more than Karen. Lena jogs $\frac{3}{4}$ mile more than Selma. How far does Lena jog?

4. Jeremy has 18 marbles. He loses 6 of them.

a. What fraction of the marbles does he lose?

b. What fraction of the marbles does he have left?

5. Mrs. Yan buys 4 red tulips and 5 yellow tulips.

a. What fraction of the tulips are red?

b. What fraction of the tulips are yellow?

6. Charles owns 3 cats, 4 goldfish, and some parakeets. Altogether, he has 10 pets.

a. What fraction of his pets are goldfish?

b. What fraction of his pets are parakeets?

Name: _____ **Date:** _____

7. Rick had $20. He spent $10 on food, $6 on a movie ticket, and saved the rest.

a. How much money did he save?

b. What fraction of the total amount did he save?

8. There are 24 boys in a class, and $\frac{2}{3}$ of the students in the class are boys. How many students are girls?

9. One morning, The Shirt Shop sold 15 T-shirts. Of the T-shirts sold, $\frac{1}{5}$ were gray. The rest were white. How many white T-shirts were sold?

10. A chef bought some green and red peppers. She bought 18 green peppers, which was $\frac{3}{4}$ the total number.

a. How many red peppers did she buy?

b. How many peppers did she buy altogether?

Name: _____ **Date:** _____

11. There were 25 melons in a box at the grocery store. The store sold $\frac{3}{5}$ of the melons. How many melons were sold?

12. Ava read $\frac{1}{4}$ of a book on Monday, and $\frac{1}{5}$ on Tuesday. There are 80 pages in the book. How many pages did she read altogether on both days?

13. Yulia has \$156. She spent $\frac{3}{4}$ of it on a bag and $\frac{1}{12}$ on a scarf. How much money did she have left?

14. A baker bought some butter. He used 360 grams to make some pastry. This was $\frac{5}{6}$ of the butter he had. How much butter did he buy at first?

Name: _____ Date: _____

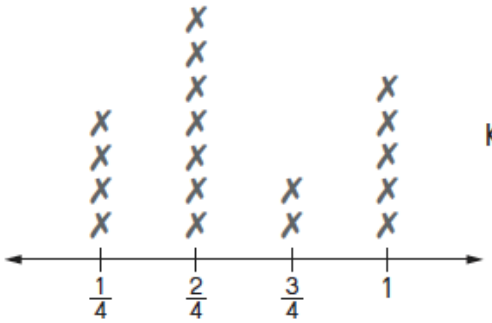
Practice 9 Line Plots with Fractions of a Unit

Example

Karina collected some seeds and measured their lengths in fractions of an inch. She recorded the lengths in a tally chart.

Length (in.)	Tally	Number of Seeds
$\frac{1}{4}$	////	4
$\frac{2}{4}$	//////	7
$\frac{3}{4}$	//	2
1	////	5

Show the data in a line plot.



Length of Seeds (in.)

Key: 1 ✗ represents 1 seed.

Use the data in your line plot. Answer the questions.

What is the total length of the seeds which are $\frac{1}{4}$ inch long?

$$4 \times \frac{1}{4} = \frac{4}{4} = 1$$

The total length is 1 inch.

What is the difference in length between the longest and shortest seeds?

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

The difference is $\frac{3}{4}$ inch.

Solve.

The table shows the amount of water in some bottles.

Amount of Water (Pints)	Number of Bottles
$\frac{1}{2}$	5
1	1
$1\frac{1}{2}$	3
2	3

13. Draw a line plot to show the data.

Key: 1 ✗ represents 1 bottle.

Name: _____ **Date:** _____

Use the data in your line plot. Answer the questions.

14. How many bottles contain $1\frac{1}{2}$ pints of water? _____

15. What is the total amount of water in the bottles that contain $\frac{1}{2}$ pint? _____

16. What is the difference between the bottle with the most amount of water and the bottle with the least amount of water? _____

The tally chart shows the length of some ropes used to tie boxes.

Length of Rope (Yard)	Tally	Number of Pieces of Rope
$\frac{1}{6}$	//	
$\frac{1}{3}$	////	
$\frac{1}{2}$	/	
$\frac{2}{3}$	////	
1	//// /	
2	///	

17. Complete the table.

18. Draw a line plot to show the data.

Key: 1 ✗ represents 1 piece of rope.

Use the line plot to answer the questions.

19. How many pieces of ropes are there? _____

20. What is the length of the rope which has the most number of pieces of ropes?

_____

21. What is the difference in length between the longest piece and the shortest piece of rope? _____

22. What is the total length of the pieces of ropes which are $\frac{1}{3}$ yard long? _____

23. Rope sells for $3 per yard. What is the total cost of all pieces that are $\frac{1}{3}$ yard long? _____

Name: _____ **Date:** _____

A class of 20 students each grew a plant in science class. The table shows the heights of the plants after two months.

Height of Plant (ft)	Number of Plants
$\frac{1}{4}$	1
$\frac{2}{4}$	4
$\frac{3}{4}$	5
1	3
$1\frac{1}{4}$	?

24. How many plants were $1\frac{1}{4}$ feet tall? _____

25. Draw a line plot to show the data.

26. What does each ✗ in your line plot represent? _____

27. What is the difference between the tallest and the shortest plant? _____

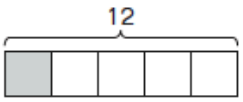
28. What is the total height of all the plants which are $\frac{2}{4}$ feet tall? _____

Math Journal

Is the model correct? If not, explain why it is wrong. Draw the correct model.

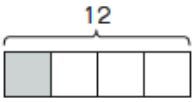
Example

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

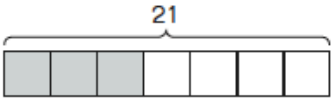


The model is wrong because it should have only four parts.

Correct model:



$\frac{2}{7}$ of 21



Correct model:

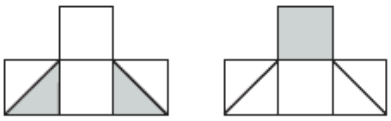
Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

1. Show $1\frac{1}{4}$ shaded, if 1 whole is made up of 4 squares.

Some of the shading has been done for you.



2. Is the answer of $21 \times \frac{2}{7}$ the same as that of $2 \times \frac{21}{7}$?
Show your work.

3. Write a fraction and a whole number that have the same product as the problem below.

$8 \times \frac{3}{4} =$ _____

_____ $\times$ _____ = _____

Put On Your Thinking Cap!

Problem Solving

Caroline places five poles A, B, C, D, and E in order along a straight line. The distance between poles A and D is 1 yard. The distance between poles B and C is the same as the distance between poles A and B.

Poles A and B are $\frac{1}{5}$ yard apart.

The distance between D and E is $\frac{7}{10}$ yard.

How far apart are poles B and E?

Name: _____ Date: _____

Cumulative Review

for Chapters 7 and 8

Concepts and Skills

Write each fraction or mixed number as a decimal. *(Lesson 7.1)*

1. $\frac{4}{10}$ = _____ **2.** $3\frac{3}{10}$ = _____ **3.** $\frac{18}{10}$ = _____

Write each decimal in tenths. *(Lesson 7.1)*

4. 0.6 = _____ tenths **5.** 1.7 = _____ tenths

6. 9.5 = _____ tenths **7.** 4.2 = _____ tenths

Write each of these as a decimal. *(Lesson 7.1)*

8. 3 ones and 4 tenths = _____ **9.** 8 ones and 1 tenth = _____

10. 77 tenths = _____ **11.** 19 tenths = _____

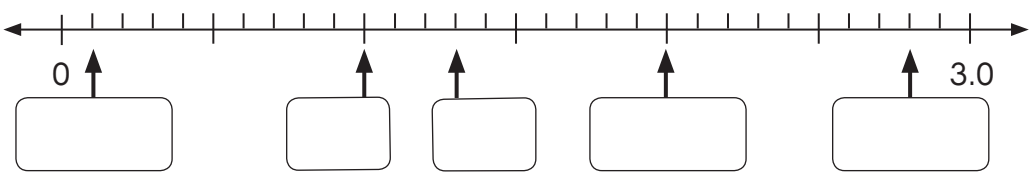
Fill in the blanks. *(Lesson 7.1)*

12. 22 tenths = 2 ones and _____ tenths

13. 3.2 = 3 ones and _____ tenths

Write the correct decimal in each box. *(Lesson 7.1)*

14.



Complete the expanded form of each decimal. *(Lesson 7.1)*

15. $5.4 = 5 + \_\_\_\_\_$

16. $7.1 = 7 + \_\_\_\_\_$

17. $3.6 = 3 + \_\_\_\_\_$

18. $10.2 = 10 + \_\_\_\_\_$

Fill in the blanks. *(Lesson 7.1)*

19. In 22.3, the digit 3 is in the _____ place.

Its value is _____.

Write each fraction or mixed number as a decimal. *(Lesson 7.2)*

20. $\frac{9}{100} = \_\_\_\_\_$

21. $2\frac{26}{100} = \_\_\_\_\_$

22. $\frac{105}{100} = \_\_\_\_\_$

Write each decimal in hundredths. *(Lesson 7.2)*

23. $0.06 = \_\_\_\_\_$ hundredths

24. $1.33 = \_\_\_\_\_$ hundredths

25. $2.5 = \_\_\_\_\_$ hundredths

Write each of these as a decimal. *(Lesson 7.2)*

26. 2 ones and 6 hundredths = _____

27. 5 tenths 5 hundredths = _____

28. 7 ones and 3 tenths 4 hundredths = _____

Name: _____ **Date:** _____

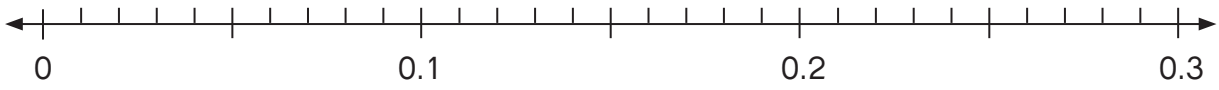
Fill in the blanks. *(Lesson 7.2)*

29. 16 hundredths = 1 tenth _____ hundredths

30. 0.45 = 4 tenths _____ hundredths

Mark ✗ to show where each decimal is located on the number line. Label its value. *(Lesson 7.2)*

31. 0.04 **32.** 0.15 **33.** 0.26



Complete. *(Lesson 7.2)*

34. 5.2 = _____ ones and _____ tenths

35. 0.86 = _____ tenths _____ hundredths

36. 3.7 = _____ tenths

37. 0.93 = _____ hundredths

Write each sum as a decimal . *(Lesson 7.2)*

38. 7 + 0.6 + 0.02 = _____

39. 10 + 0.4 + 0.04 = _____

40. $5 + \frac{1}{10} + \frac{8}{100} =$ _____

41. $9 + \frac{3}{10} + \frac{7}{100} =$ _____

Fill in the blanks. *(Lesson 7.2)*

42. In 14.68, the digit 8 is in the _____ place.
Its value is _____.

Fill in the blanks. *(Lesson 7.2)*

43. \$0.75 = _____ cents

44. \$12.25 = _____ cents

45. \$8.05 = _____ cents

Write each amount of money in decimal form. *(Lesson 7.2)*

46. 65 cents = \$_____

47. 10 dollars and 90 cents = \$_____

48. 2 dollars and 5 cents = \$_____

Fill in the blanks. *(Lesson 7.3)*

49. 0.1 more than 1.1 is _____.

50. 0.2 less than 2 is _____.

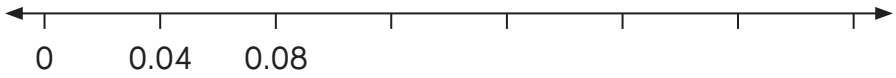
51. 0.01 less than 0.1 is _____.

52. 0.03 more than 0.07 is _____.

Name: _____ Date: _____

Mark ✗ to show where each decimal is located on the number line. Label its value. *(Lesson 7.3)*

53. 0.16 **54.** 0.24



Compare. Write > or <. *(Lesson 7.3)*

55. 4.1 ◯ 0.41 **56.** 0.73 ◯ 0.70

Circle the greatest decimal and underline the least. *(Lesson 7.3)*

57. 3.04 3.4 0.34

58. 0.6 0.61 0.65

Fill in the blank. *(Lesson 7.3)*

59. Write a decimal that is greater than 0.9 but less than 1.0. _____

Round each decimal to the nearest whole number. *(Lesson 7.4)*

60. 4.36 = _____ **61.** 7.81 = _____ **62.** 5.07 = _____

Round each decimal to the nearest tenth. *(Lesson 7.4)*

63. 2.39 = _____ **64.** 6.63 = _____ **65.** 4.00 = _____

Write each decimal as a fraction in simplest form. *(Lesson 7.5)*

66. $0.6 =$ ☐

67. $0.55 =$ ☐

Write each fraction or mixed number as a decimal. *(Lesson 7.5)*

68. $\frac{1}{5} =$ _____

69. $\frac{9}{20} =$ _____

70. $\frac{5}{2} =$ _____

71. $1\frac{3}{4} =$ _____

72. $4\frac{2}{5} =$ _____

73. $5\frac{1}{4} =$ _____

Find each sum or difference. *(Lessons 8.1 and 8.2)*

74.
$$\begin{array}{r} 6.74 \\ +\ 2.17 \\ \hline \end{array}$$

75.
$$\begin{array}{r} 3.28 \\ +\ 0.91 \\ \hline \end{array}$$

76.
$$\begin{array}{r} 5.76 \\ +\ 4.26 \\ \hline \end{array}$$

77.
$$\begin{array}{r} 7.05 \\ -\ 1.33 \\ \hline \end{array}$$

78.
$$\begin{array}{r} 8.72 \\ -\ 3.43 \\ \hline \end{array}$$

79.
$$\begin{array}{r} 6.36 \\ -\ 5.79 \\ \hline \end{array}$$

Name: _____ Date: _____

Problem Solving

Solve. Show your work. *(Lesson 8.3)*

80. Lina thinks of a number. When she adds 9.65 to it, she gets 20.7.
What number is Lina thinking of?

81. Suri bought a skirt for $25.90 and a sweatshirt for $19.90.
She paid the cashier $50.
How much change did she receive?

82. Jim bought a pen and a calculator. He paid the cashier $50 and received $20.45 change. If the pen cost $4.50, how much did the calculator cost?

83. A pole is painted white and red. The white part is 0.75 meter long and the red part is 1.45 meters longer. What is the length of the pole?

Name: _____ Date: _____

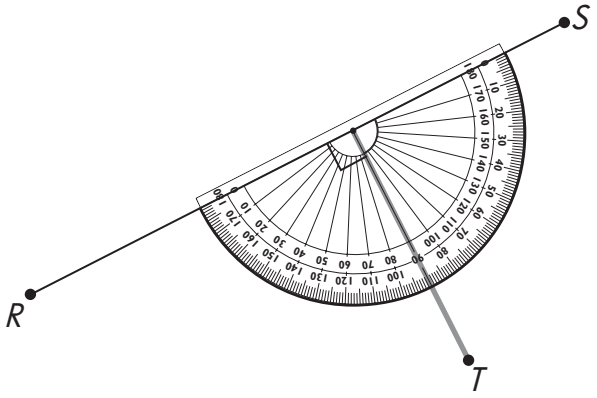
Chapter 10 Perpendicular and Parallel Line Segments

Practice 1 Drawing Perpendicular Line Segments

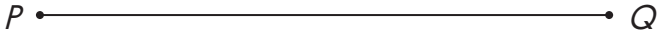
Use a protractor to draw perpendicular line segments.

Example

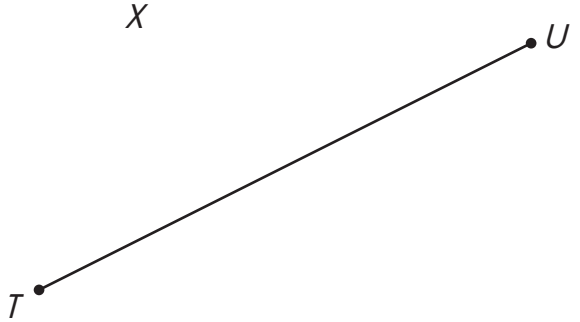
Draw a line segment perpendicular to $\overline{RS}$ through point T.



1. Draw a line segment perpendicular to $\overline{PQ}$.

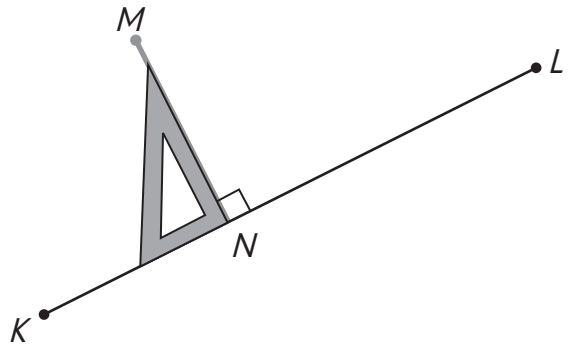


2. Draw a line segment perpendicular to $\overline{TU}$ through point X.

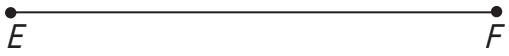


Use a drawing triangle to draw perpendicular line segments.

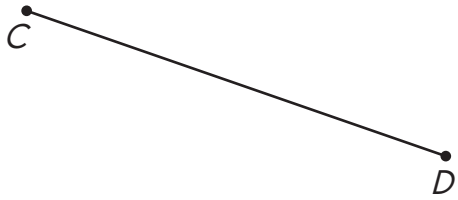
Example



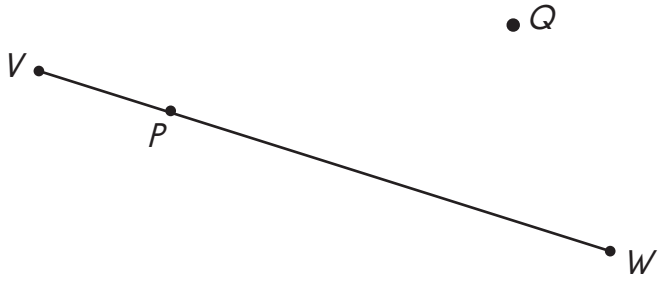
3. Draw a line segment perpendicular to $\overline{EF}$.



4. Draw a line segment perpendicular to $\overline{CD}$.



5. Draw a line segment perpendicular to $\overline{VW}$ at point P.
Then, draw another line segment perpendicular to $\overline{VW}$ through point Q.



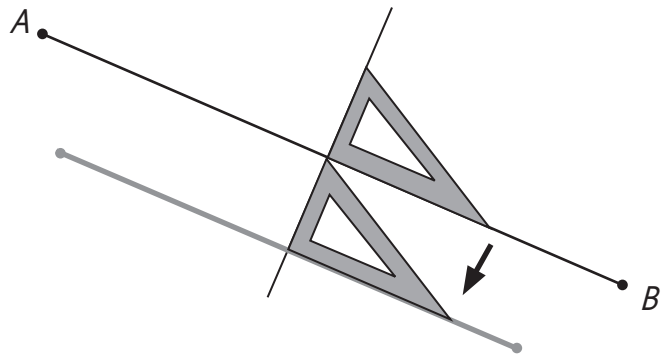
Name: _____ **Date:** _____

Practice 2 Drawing Parallel Line Segments

Use a drawing triangle and a straightedge to draw parallel line segments.

Example

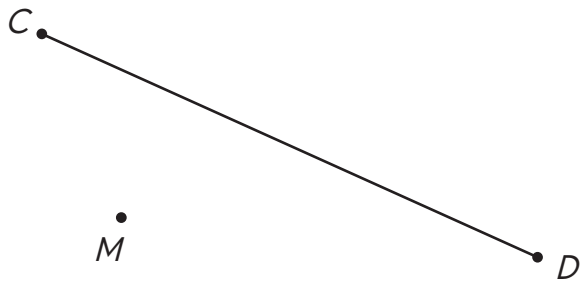
Draw a line segment parallel to $\overline{AB}$.



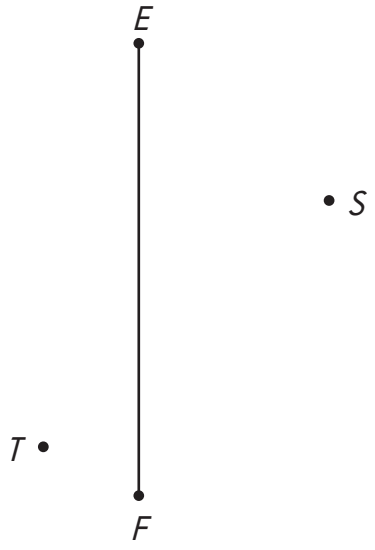
1. Draw a pair of parallel line segments.

Use a drawing triangle and a straightedge to draw parallel line segments.

2. Draw a line segment parallel to $\overline{CD}$ through point M.



3. Draw a line segment parallel to $\overline{EF}$ through point T.
Then, draw another line segment parallel to $\overline{EF}$ through point S.

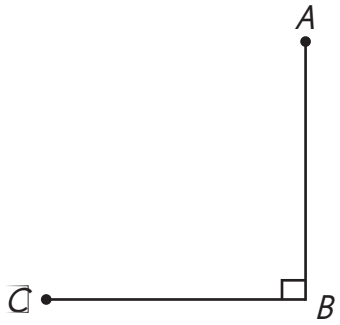


Name: _____ Date: _____

Practice 3 Horizontal and Vertical Lines

Answer the questions.

1. $\overline{AB}$ is perpendicular to $\overline{BC}$.



If $\overline{AB}$ is a vertical line segment, what do you know about $\overline{BC}$?

_____

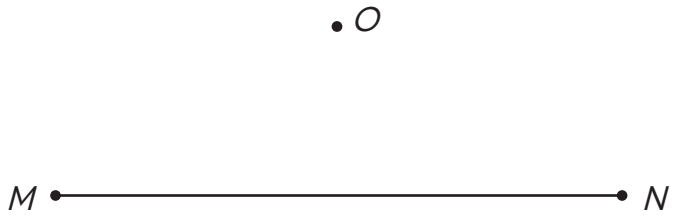
2. **a.** $\overline{DE}$ is a vertical line segment. Draw a horizontal line segment through point D and label it $\overline{DF}$.

b. What do you know about the angle formed by $\overline{DE}$ and $\overline{DF}$?

_____

Complete.

3. **a.** $\overline{MN}$ is a horizontal line segment. Draw a vertical line segment through point O to meet $\overline{MN}$ and label the point P.



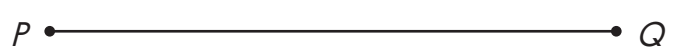
b. What do you know about $\overline{MN}$ and $\overline{OP}$?

_____

c. How many right angles are formed by $\overline{MN}$ and $\overline{OP}$?

_____

4. **a.** $\overline{PQ}$ is a horizontal line segment.
Draw a vertical line segment at point P.
Name it $\overline{PR}$. Then draw a vertical line segment at point Q.
Name it $\overline{QS}$.



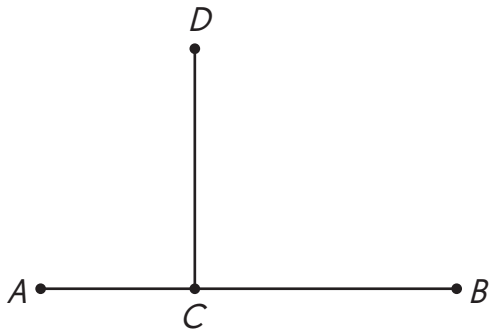
b. What do you know about $\overline{PR}$ and $\overline{QS}$? Check with a drawing triangle and a straightedge.

_____

Name: _____ **Date:** _____

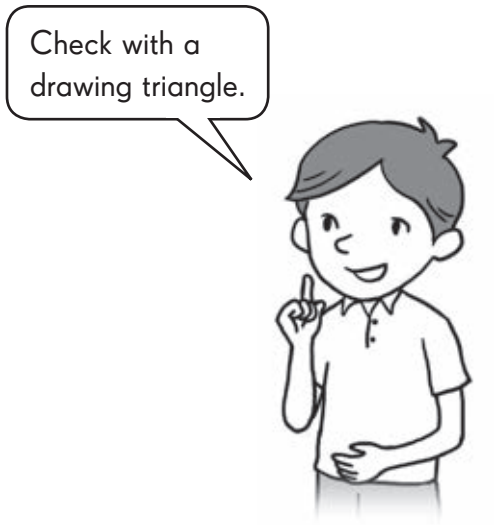
Complete.

5. **a.** $\overline{AB}$ is a horizontal line segment and $\overline{CD}$ is a vertical line segment. At point D, draw a line segment parallel to $\overline{AB}$. Name it $\overline{DE}$.



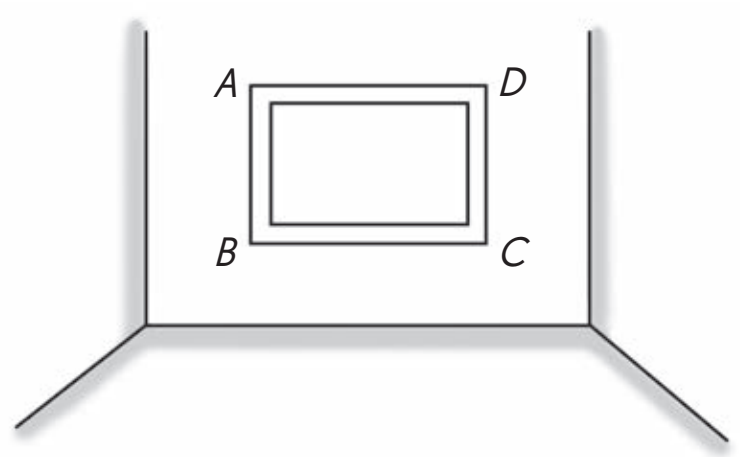
b. What do you know about $\overline{CD}$ and $\overline{DE}$?

_____



Complete.

6. *ABCD* is a whiteboard fixed to the wall.



Name the vertical and horizontal line segments on the whiteboard.

Vertical line segments: _____

Horizontal line segments: _____

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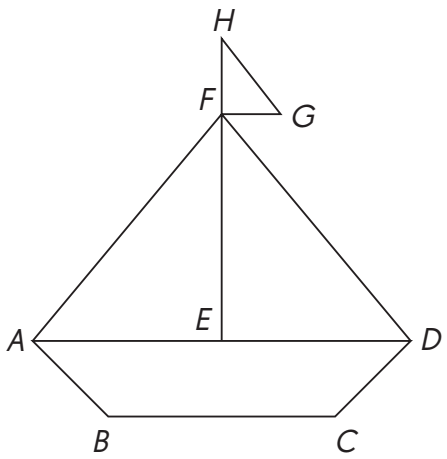
Put On Your Thinking Cap!

Challenging Practice

In the figure, use a protractor, drawing triangle, and a straightedge to name three pairs of line segments that are



1. perpendicular. _____

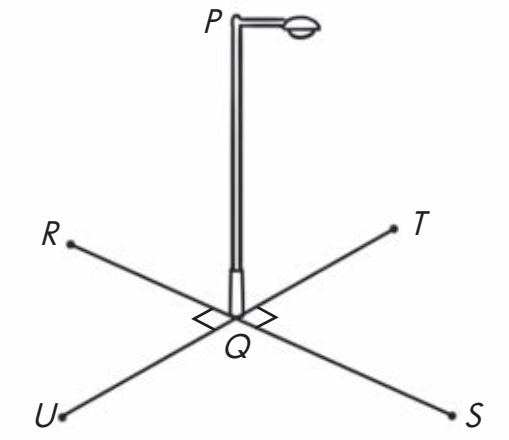
_____

2. parallel. _____

_____

Solve.

PQ is a lamp post standing vertically on the ground.
$\overline{RS}$ and $\overline{UT}$ are horizontal line segments on the ground passing through point Q.
$\overline{QT}$ is perpendicular to $\overline{QS}$.



3. Identify two other pairs of line segments that are perpendicular.

_____

_____

4. How many right angles are formed at point Q? _____

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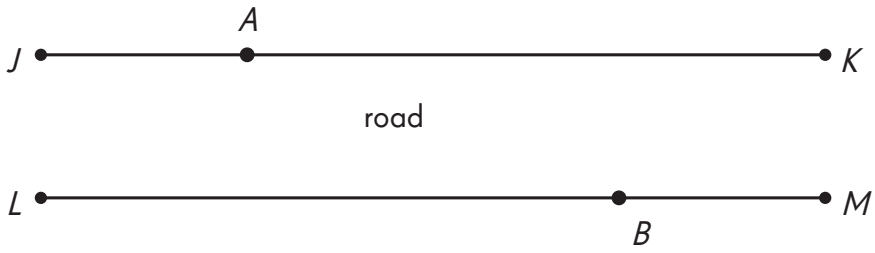
Put On Your Thinking Cap!

Problem Solving

The diagram shows a road with parallel curbs $\overline{JK}$ and $\overline{LM}$.



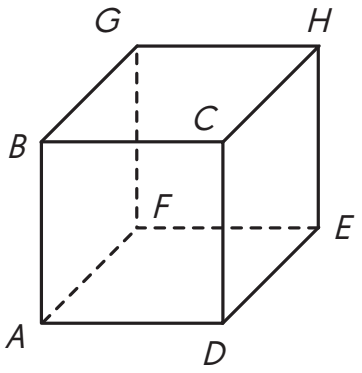
1. Danie is standing at point *A* and Alicia is standing at point *B*. They both want to cross the road. Use a drawing triangle to draw the shortest route each can take, and mark all the right angles like this ⌞. Measure the distance along each route.

2. What do you know about the distance between parallel line segments?

Parallel line segments are always _____ distance apart.

Solve.

The cube is placed on a flat surface.



3. How many vertical line segments are there? _____

4. How many horizontal line segments are there? _____

5. How many right angles are there? _____

Name: _____ Date: _____

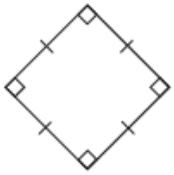
Chapter 11 Squares and Rectangles

Practice 1 Squares and Rectangles

Fill in the blanks with *yes* or *no*.

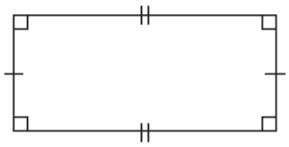
Example

Is this a square? Yes

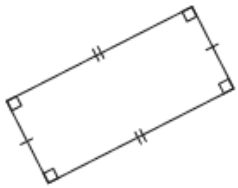


1. Is this a rectangle? _____

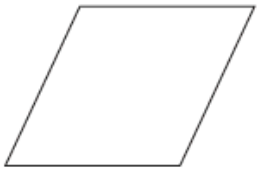
2. Is this a square? _____



3. Is this a rectangle? _____



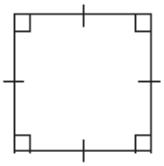
4. Is this a square? _____



5. Is this a rectangle? _____

Fill in the blanks.

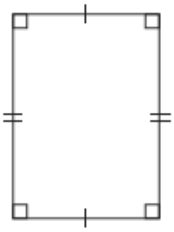
Example



Is this a square? Yes

Why or why not? All its sides are of equal length, and it has four right angles.

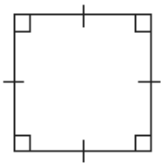
6.



Is this a rectangle? _____

Why or why not? _____

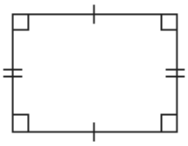
7.



Is this a rectangle? _____

Why or why not? _____

8.



Is this a square? _____

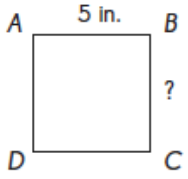
Why or why not? _____

Name: _____ **Date:** _____

Find the lengths of the unknown sides.

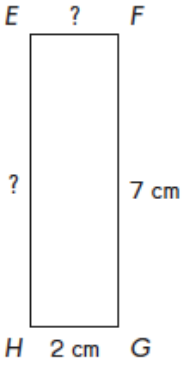
Example

ABCD is a square.



BC = 5 in.

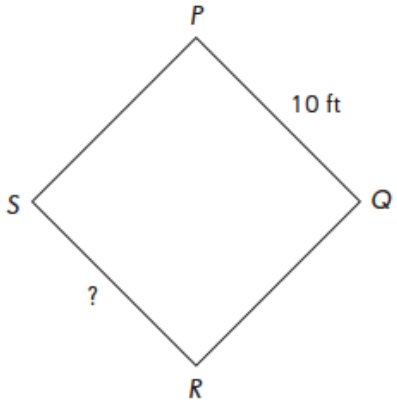
9. *EFGH* is a rectangle.



EF = _____ cm

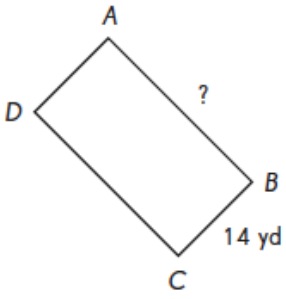
EH = _____ cm

10. *PQRS* is a square.



SR = _____ ft

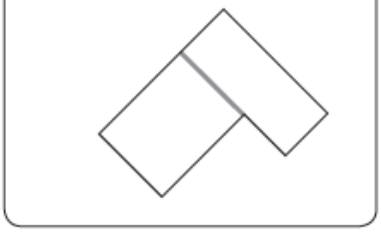
11. *ABCD* is a rectangle.
Its length is twice its width.



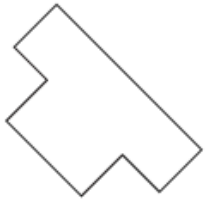
AB = _____ yd

Draw a line segment to break up each figure into two rectangles.

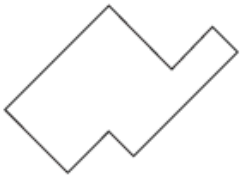
Example



12.



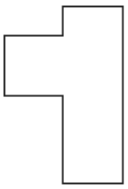
13.



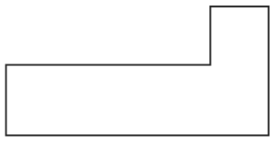
14.

Draw a line segment to break up each figure into one square and one rectangle.

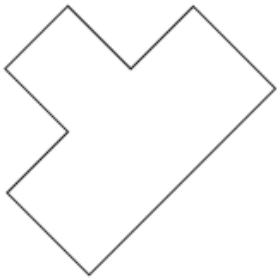
15.



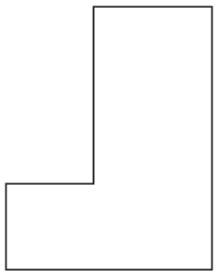
16.



17.



18.



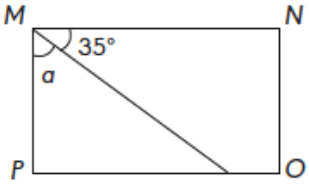
Name: _____ Date: _____

Practice 2 Properties of Squares and Rectangles

All the figures are rectangles. Find the measures of the unknown angles.

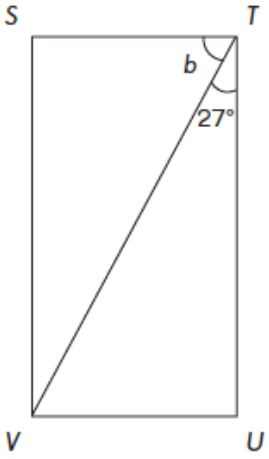
Example

Find the measure of $\angle a$.

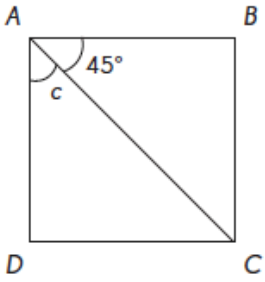


Measure of $\angle a = 90° - 35°$
$= 55°$

1. Find the measure of $\angle b$.

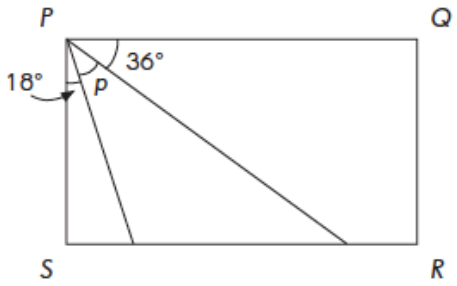


2. Find the measure of $\angle c$.

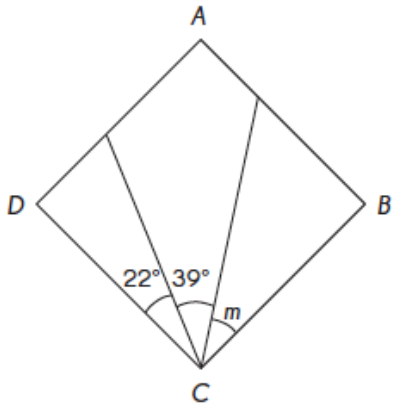


All the figures are rectangles. Find the measures of the unknown angles.

3. Find the measure of $\angle p$.



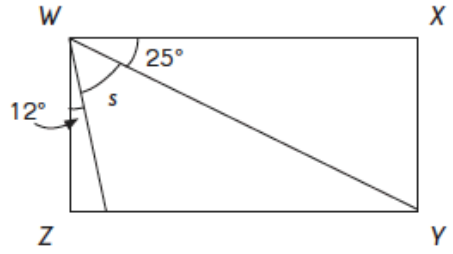
4. Find the measure of $\angle m$.



Name: _____ Date: _____

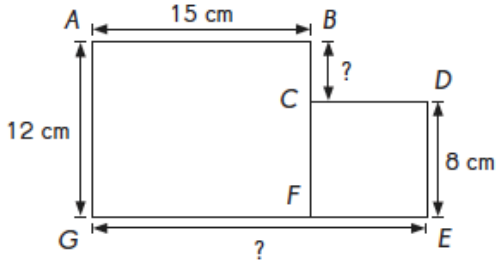
The figure is a rectangle. Find the measure of the unknown angle.

5. Find the measure of $\angle s$.



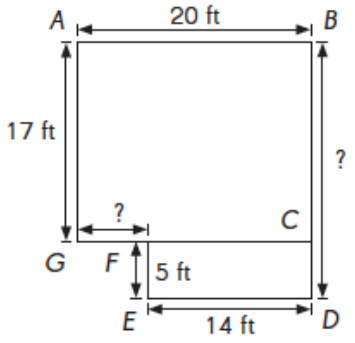
Find the lengths of the unknown sides.

6. The figure is made up of a rectangle and a square. Find BC and GE.

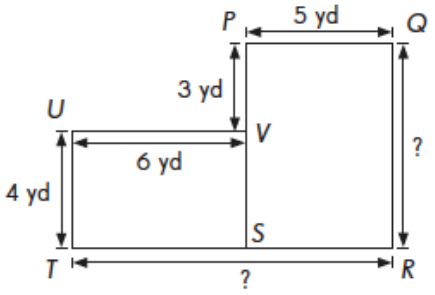


Find the lengths of the unknown sides.

7. The figure is made up of two rectangles. Find *BD* and *FG*.



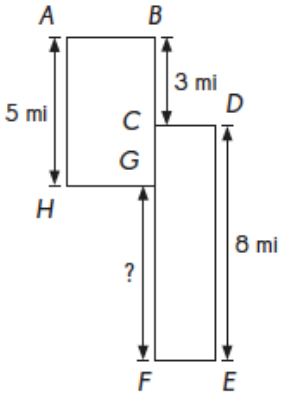
8. The figure is made up of two rectangles. Find *QR* and *RT*.



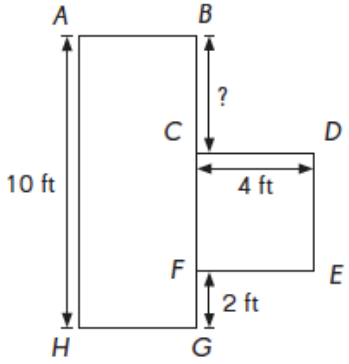
Name: _____ **Date:** _____

Find the lengths of the unknown sides.

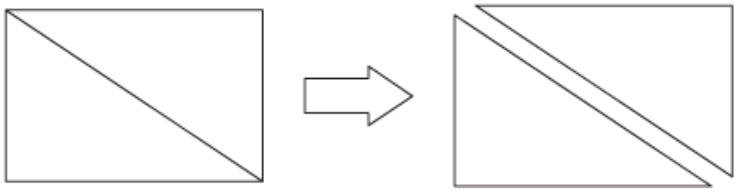
9. The figure is made up of two rectangles. Find *FG*.



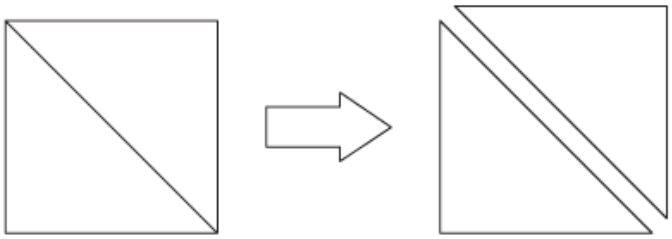
10. The figure is made up of a square and a rectangle. Find *BC*.



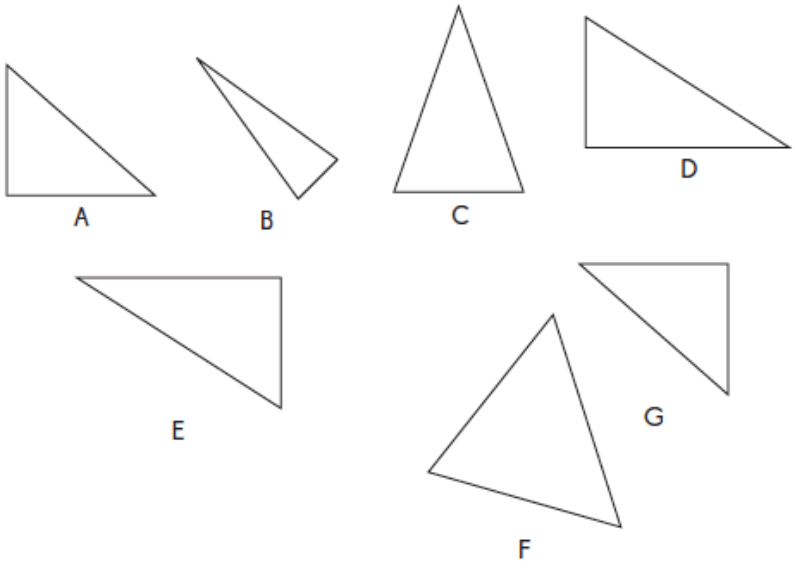
When we divide a rectangle into two, we get two right triangles.



In the same way, we can divide a square into two right triangles.



11. Which two of these right triangles make a rectangle and which two make a square?

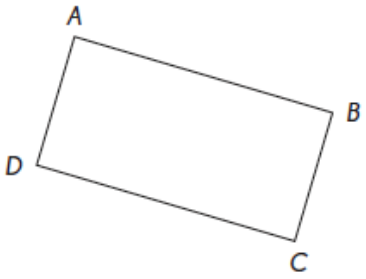


Name: _____ Date: _____

Math Journal

Figure *ABCD* is a rectangle.
Complete each statement. Use the words in the box.

opposite	parallel	of equal length
right	sides	four



1. A rectangle has _____ _____.

2. Its _____ sides are _____.

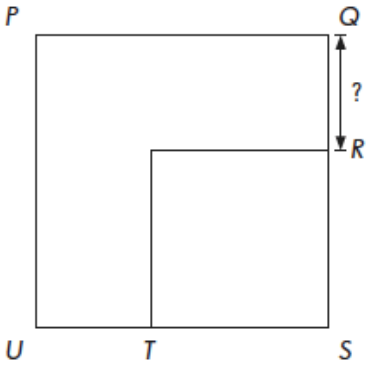
3. Its _____ sides are _____.

4. It has _____ _____ angles.

Put On Your Thinking Cap!

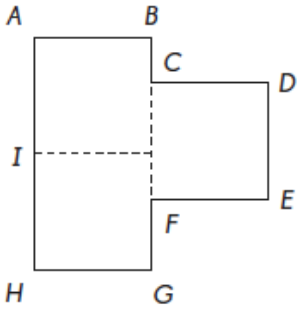
Challenging Practice

1. The figure is made up of two squares, one with 10-inch sides and the other with 6-inch sides. Find QR.



$QR =$ _____ in.

2. The figure is made up of three identical squares with 3-inch sides. Find the total length of $\overline{BC}$ and $\overline{FG}$.



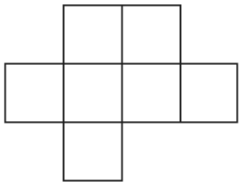
$BC + FG =$ _____ in.

Name: _____ Date: _____

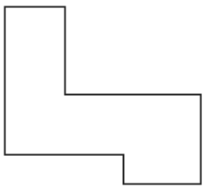
Put On Your Thinking Cap!

Problem Solving

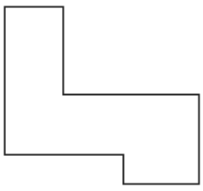
1. Look at the figure. What is the least number of squares that must be added to make a rectangle?



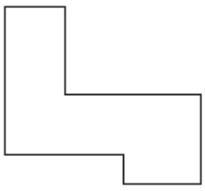
2. Draw line segments to divide the figure into three rectangles in three ways.



first way

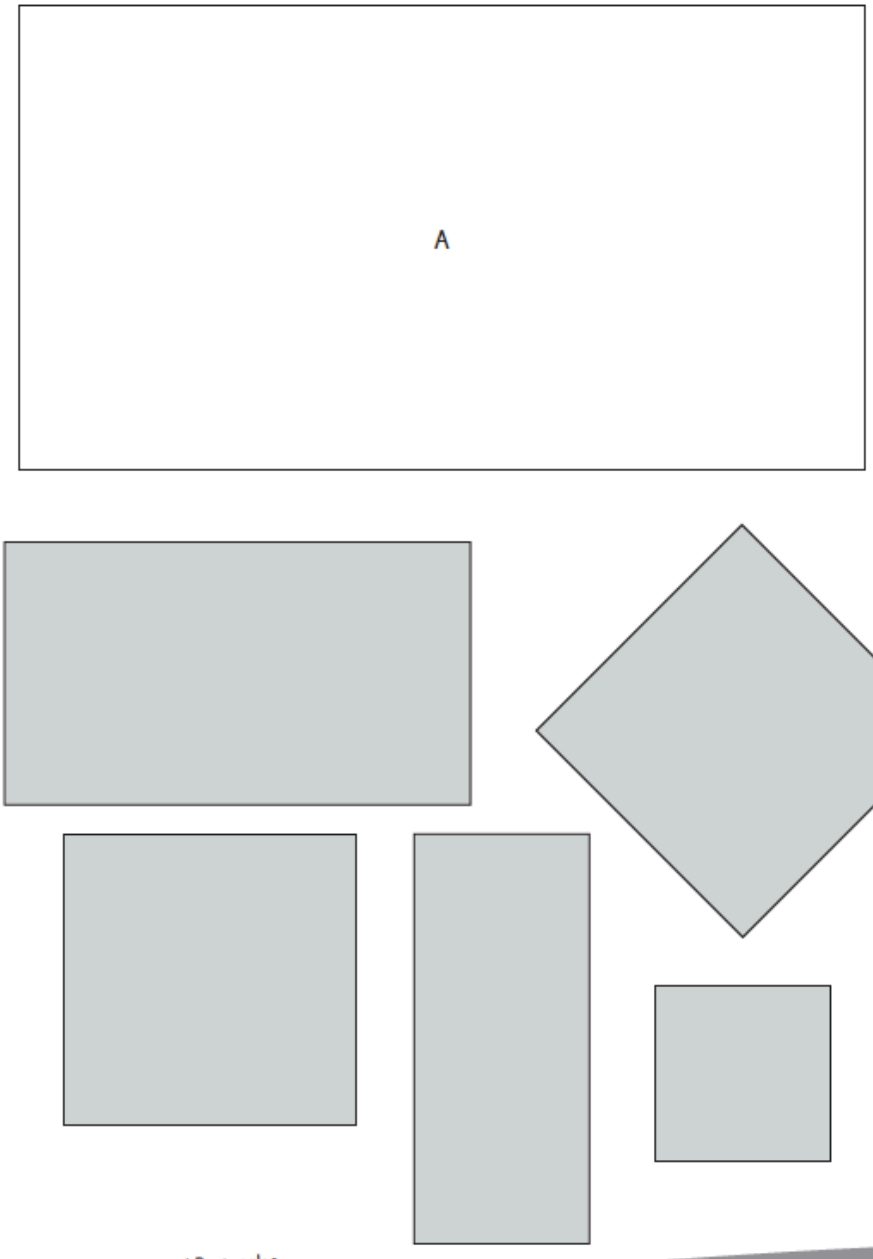


second way



third way

3. Cut out the shaded rectangles and squares. Arrange them to fit inside rectangle A without overlapping. Then attach them with tape.



Name: _____ Date: _____

Chapter 13 Area and Perimeter

Practice 1 Area of a Rectangle

Find the area of each figure.

Example

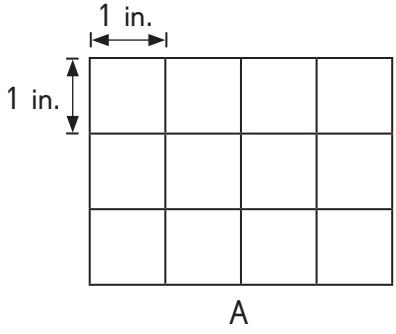
There are 3 rows of one-inch squares.

Each row has 4 one-inch squares.

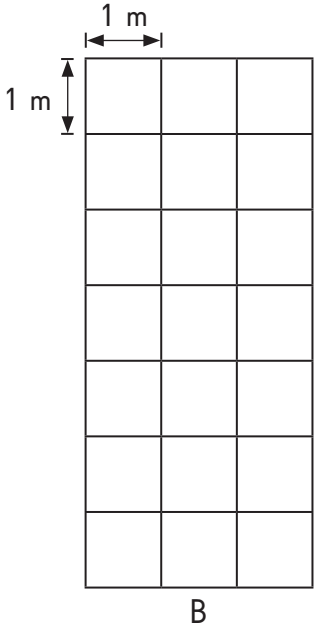
3 × 4 = 12

There are 12 one-inch squares covering rectangle A.

Area of rectangle A = 12 in.^{2}



1.



There are _____ rows of one-meter squares.

Each row has _____ one-meter squares.

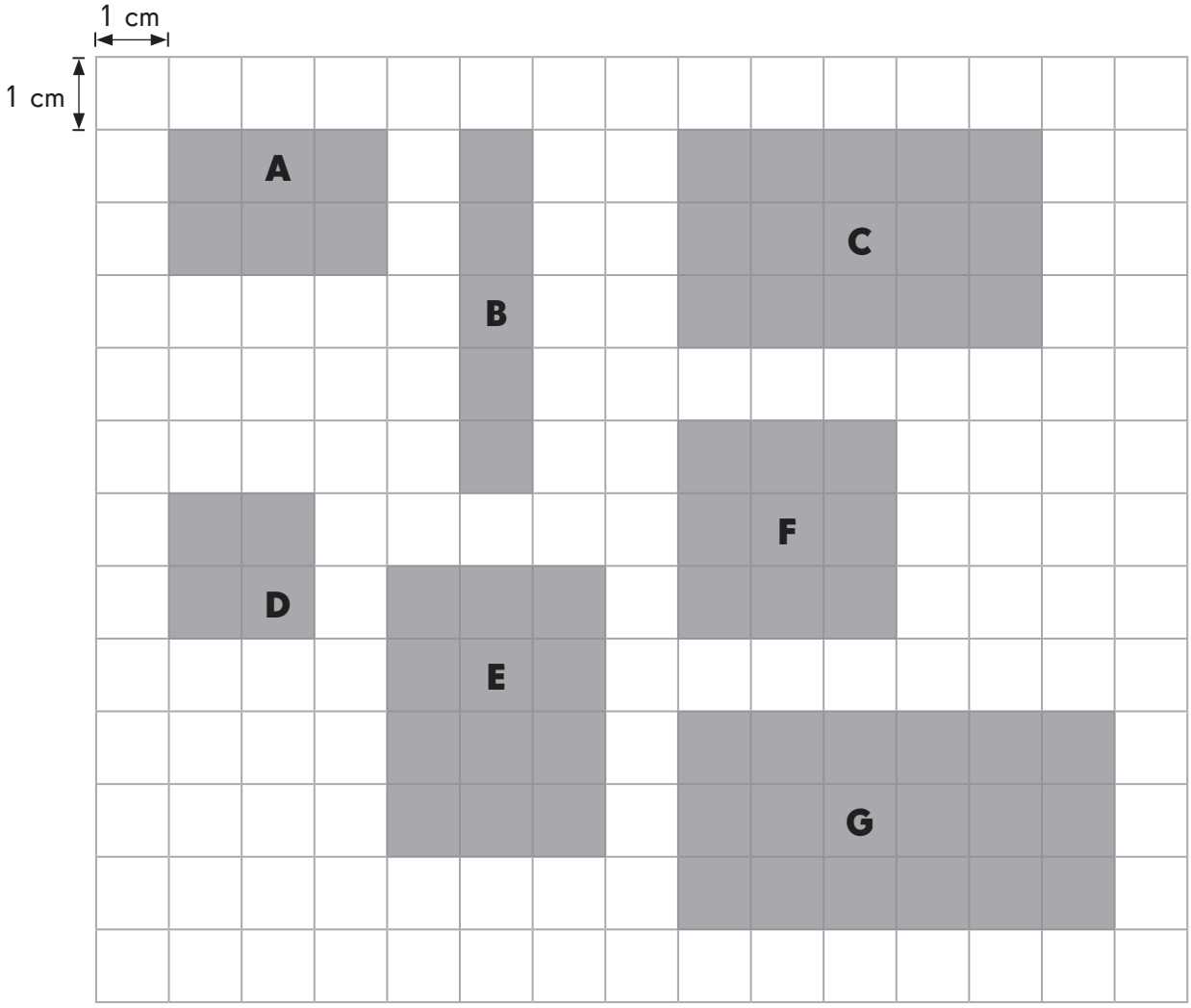
_____ × _____ = _____

There are _____ one-meter squares covering rectangle B.

Area of rectangle B = _____ m^2

Look at the rectangles in the grid. Write the length, width, and area of each rectangle in the grid. Give your answers in the correct units.

2.

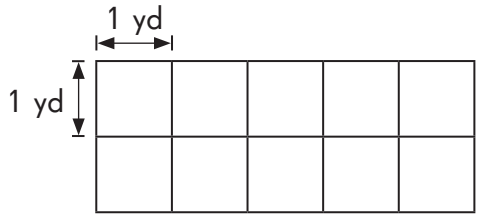


Rectangle	Length	Width	Area = Length × Width
A	3 cm	2 cm	6 cm^2
B			
C			
D			
E			
F			
G			

Name: _____ **Date:** _____

Complete to find the area of each figure.

3.



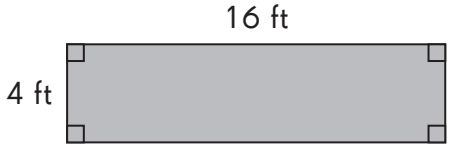
Area = length × width

= _____ × _____

= _____ yd^2

The area is _____ square yards.

4.



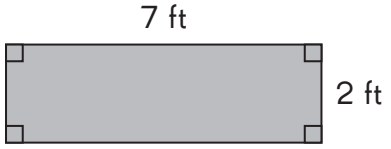
Area = _____ × _____

= _____ ft^2

The area is _____ square feet.

Find the perimeter and area of each rectangle or square.

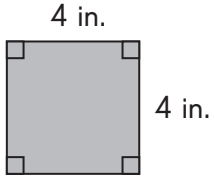
Example



Perimeter = 18 ft

Area = 14 ft^2

5.



Perimeter = _____ in.

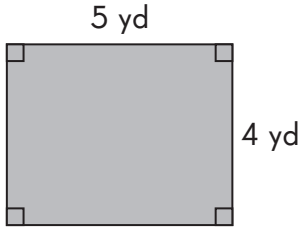
Area = _____ $in.^2$

6.

Perimeter = _____ ft

Area = _____ ft^2

7.



Perimeter = _____ yd

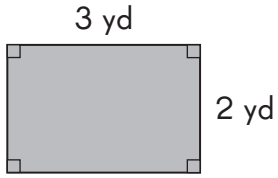
Area = _____ yd^2

Solve. Show your work.

Example

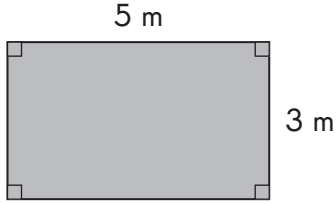
Ashley has a rug that measures 3 yards by 2 yards on her bedroom floor.
What area of her bedroom floor is covered by the rug?

Area = length × width
= 3 × 2
= 6 yd^2



The area of her bedroom floor covered by the rug is 6 square yards.

8. Paula wants to paint one of the walls in her room blue.
The wall measures 5 meters by 3 meters.
What is the area of the wall she has to paint?



9. The area of a nature reserve is 100 square miles.
Oak trees were planted on a square plot of land in the nature reserve with sides that measure 8 miles each.
What area of the nature reserve is not covered by oak trees?

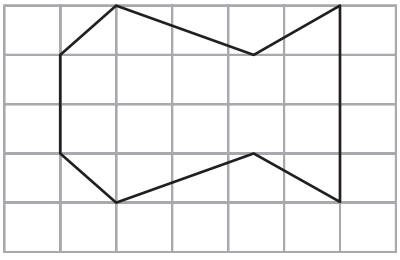
Name: _____ Date: _____

Solve. Show your work.

10. Yolanda has a piece of rectangular fabric measuring 30 centimeters by 9 centimeters. She uses half of the material to make a puppet. What is the area of the leftover fabric?

Estimate the area of each figure in square units.

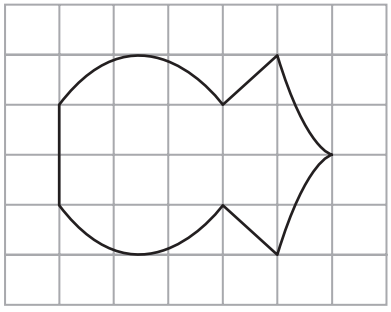
Example



Estimated area

= 14–15 square units

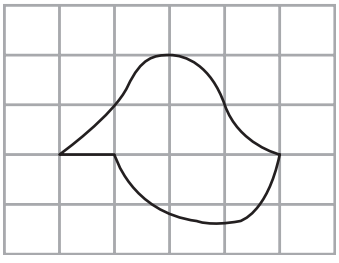
11.



Estimated area

= _____ square units

12.



Estimated area = _____ square units

Math Journal

Look at John's answers for the area and perimeter of the figures.

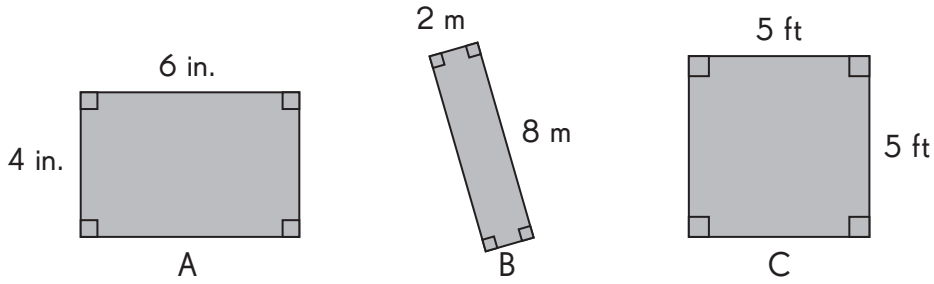


Figure	Length	Width	Area	Perimeter
A	6 in.	4 in.	24 in.	10 in.
B	8 m	2 m	16 m^2	20 cm
C	5 ft	5 ft	10 ft^2	20 ft

John's mistakes are circled.

Explain why these answers are wrong. Write the correct answers.

Example

Area of figure A:

The unit for the area of figure A should be 'in.^{2}'.

1. Perimeter of figure A: _____

_____

2. Perimeter of figure B: _____

_____

3. Area of figure C: _____

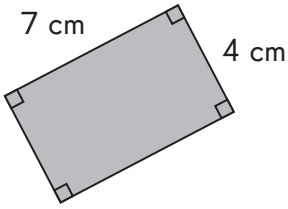
_____

Name: _____ Date: _____

Practice 2 Rectangles and Squares

Find the perimeter of each figure.

Example



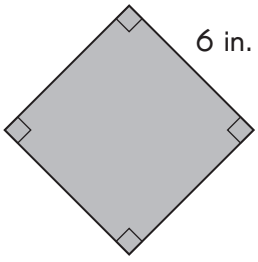
Perimeter of rectangle

$= \underline{7} + \underline{4} + \underline{7} + \underline{4}$

$= \underline{22}$ cm

The perimeter of the rectangle is $\underline{22}$ centimeters.

1.



Perimeter of square $= 4 \times$ _____

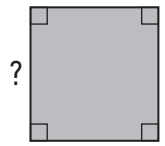
$=$ _____ in.

The perimeter of the square is _____ inches.

Solve. Show your work.

Example

The perimeter of a square flower garden is 20 feet.
Find the length of one side of the flower garden.

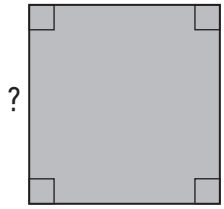


perimeter = 20 ft

Length of one side = perimeter ÷ 4
= 20 ÷ 4
= 5 ft

The length of one side of the flower garden is 5 feet.

2. The perimeter of a square building is 160 yards.
Find the length of one side of the building.

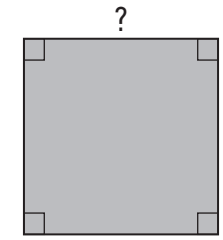


perimeter = 160 yd

Name: _____ **Date:** _____

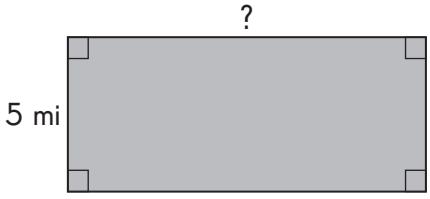
Solve. Show your work.

3. A square field has a perimeter of 44 meters. Find the length of one side of the field.



perimeter = 44 m

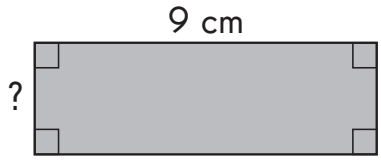
4. The perimeter of a rectangular town is 32 miles. Its width is 5 miles. Find the length.



perimeter = 32 mi

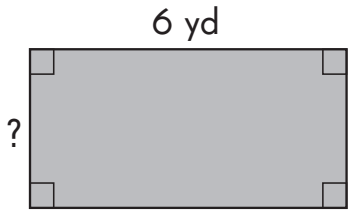
Solve. Show your work.

5. The perimeter of a rectangle is 24 centimeters. Its length is 9 centimeters. Find the width.



perimeter = 24 cm

6. The perimeter of a rectangular garden is 18 yards. Its length is 6 yards. Find its width.



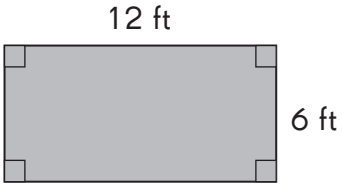
perimeter = 18 yd

Name: _____ **Date:** _____

Practice 3 Rectangles and Squares

Find the area of each figure.

Example

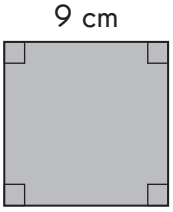


Area of the rectangle = 12 × 6

= 72 ft²

The area of the rectangle is 72 square feet.

1.



Area of the square = _____ × _____

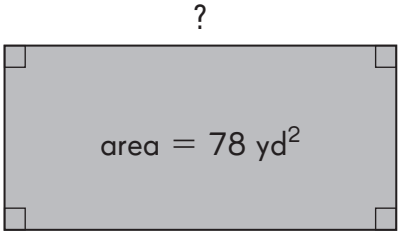
= _____ cm²

The area of the square is _____ square centimeters.

Solve. Show your work.

Example

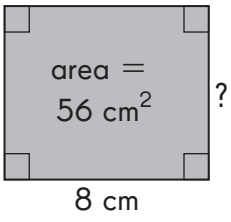
The area of a rectangular hall is 78 square yards. Its width is 6 yards. Find the length.



Length × width = area
Length × 6 = 78 yd²
Length = 78 ÷ 6
= 13 yd

The length of the hall is 13 yards.

2. A rectangle has an area of 56 square centimeters. Its length is 8 centimeters. Find the width.



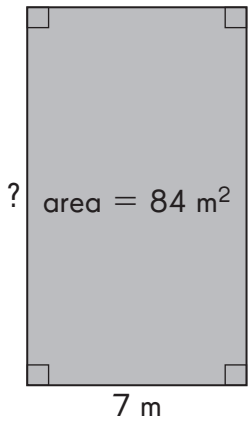
The width of the rectangle is _____ centimeters.

Name: _____ Date: _____

Solve. Show your work.

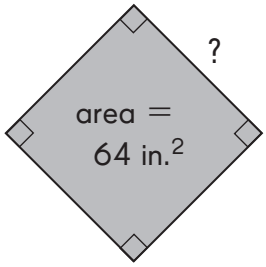
3. The area of a rectangular carpet is 84 square meters. Its width is 7 meters.

a. Find the length.



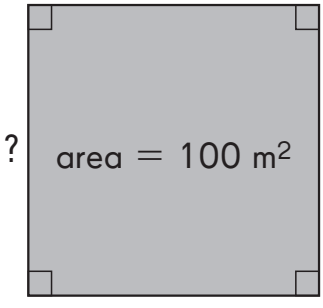
b. Find the perimeter of the carpet.

4. The area of a square is 64 square inches.
Find the length of one side of the square.
(Hint: What number multiplied by itself is equal to 64?)



5. The area of a square garden is 100 square meters.

a. Find the length of each side of the garden.

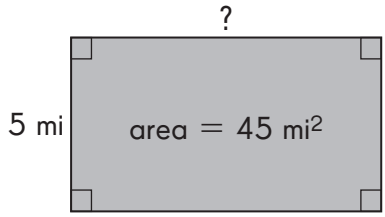


b. Find the perimeter of the garden.

Solve. Show your work.

6. The area of a rectangular recreation area is 45 square miles. Its width is 5 miles.

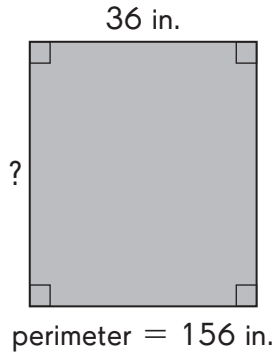
a. Find the length.



b. Find the perimeter.

7. The perimeter of a rectangular poster is 156 inches. Its width is 36 inches.

a. Find the length.



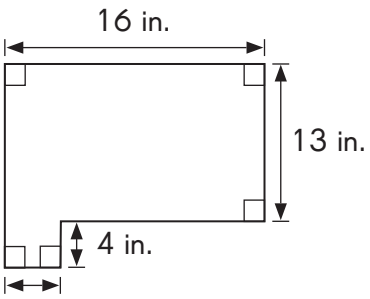
b. Find the area.

Name: _____ Date: _____

Practice 4 Composite Figures

Find the lengths of the unknown sides of each figure. Then find the perimeter of each figure.

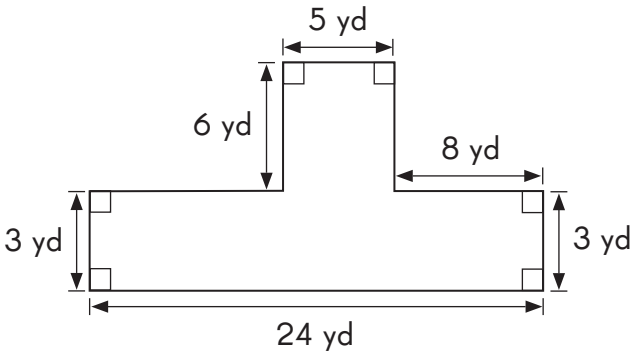
Example



Length of first unknown side = 16 − 4 = 12 in.
Length of second unknown side = 13 + 4 = 17 in.
Perimeter of figure = 16 + 13 + 12 + 4 + 4 + 17 = 66 in.

Perimeter = 66 in.

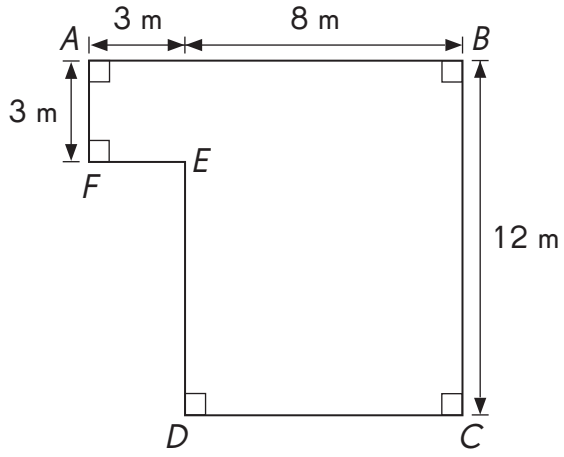
1.



Perimeter = _____ yd

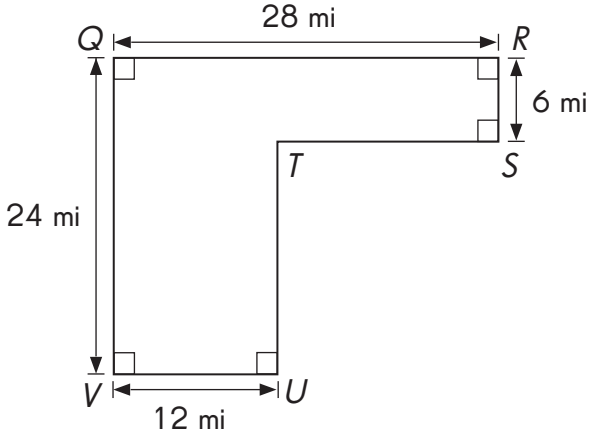
Solve. Show your work.

2. Tom wants to fence in the piece of land shown in the diagram. Find the perimeter of the piece of land to find the length of fencing material he needs.



Perimeter = _____ m

3. Find the perimeter of this figure.

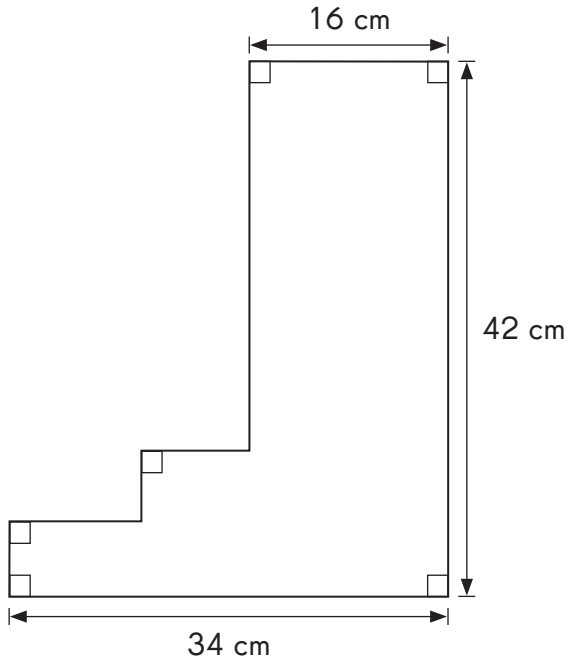


Perimeter = _____ mi

Name: _____ **Date:** _____

Solve. Show your work.

4. Find the perimeter of the figure.

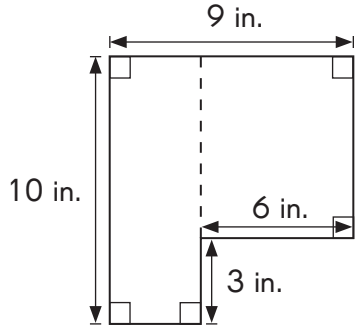


Perimeter = _____ cm

Find the area of each composite figure. Show your work.

Example

Break up the figure into two rectangles as shown.
Then find the area of the whole figure.



Area of rectangle 1 = length × width
= 10 × 3
= 30 in.^{2}

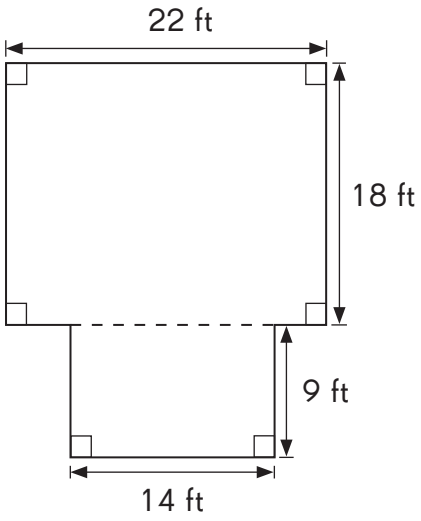
Area of rectangle 2 = length × width
= 7 × 6
= 42 in.^{2}

Total area = area of rectangle 1 + area of rectangle 2
= 30 + 42
= 72 in.^{2}

Area = 72 in.^{2}

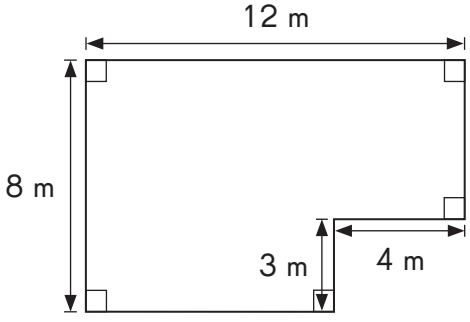
Find the area of each composite figure. Show your work.

5.



Area = _____ ft^2

6.



Area = _____ m^2

Name: _____ Date: _____

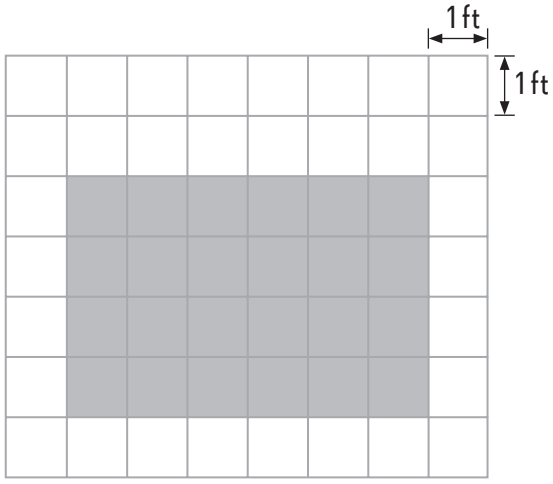
Practice 5 Using Formulas for Area and Perimeter

Solve. Show your work.

Example

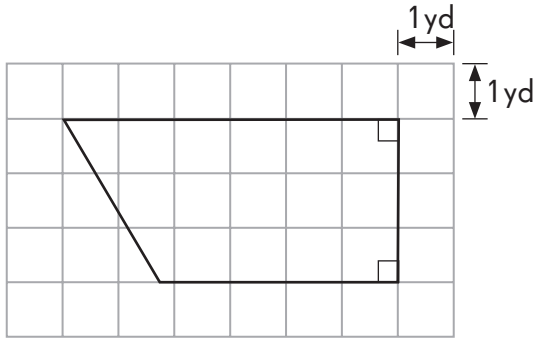
The floor of a patio measuring 8 feet by 7 feet is tiled with 1-foot square tiles. The shaded area in the figure is tiled in black, and the unshaded area is tiled in white. What is the area tiled in white?

Area of patio = 8 × 7
= 56 ft^2
Shaded area = 6 × 4
= 24 ft^2
Area of patio – shaded area
= 56 – 24
= 32 ft^2
The area tiled in white is 32 square feet.



1. The floor of Mr. Jones' living room is in the shape shown below.

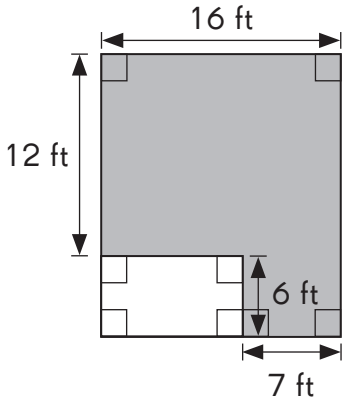
a. Estimate, in square yards, the area of his living room.



b. Mr. Jones wants to carpet his living room. If a roll of carpet is 3 yards wide, what is the smallest length of carpet Mr. Jones should buy?

Solve. Show your work.

2. The figure shows a small rectangle and a large rectangle. Find the area of the shaded part of the figure.



Area of large rectangle = _____ × _____

= _____ ft^2

Area of small rectangle = _____ × _____

= _____ ft^2

Area of shaded part = area of large rectangle − area of small rectangle

= _____ − _____

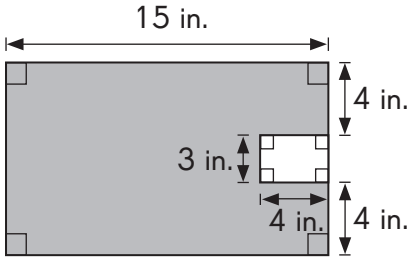
= _____ ft^2

The area of the shaded part is _____ square feet.

Name: _____ **Date:** _____

Solve. Show your work.

3. The figure shows a small rectangle and a large rectangle. Find the area of the shaded part of the figure.



Area of large rectangle = _____ × _____

= _____ $in.^2$

Area of small rectangle = _____ × _____

= _____ $in.^2$

Area of shaded part = _____ − _____

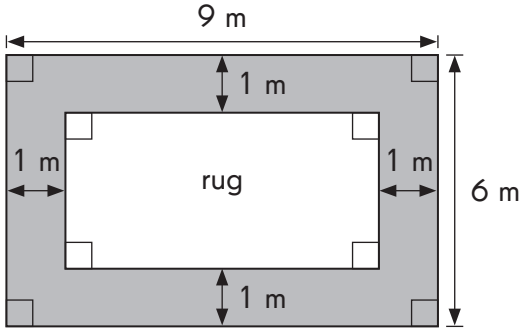
= _____ $in.^2$

The area of the shaded part is _____ square inches.

Example

A rug is centered on a rectangular floor as shown in the diagram. Find the area of the rug.

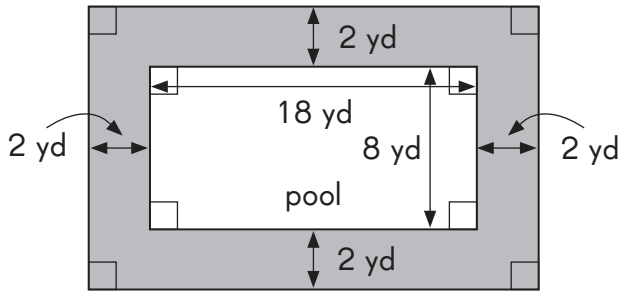
Length of rug = 9 − 1 − 1
= 7 m
Width of rug = 6 − 1 − 1
= 4 m
Area of rug = 7 × 4
= 28 m^2



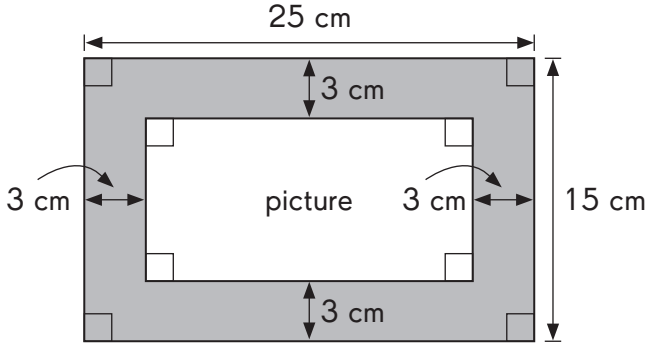
The area of the rug is 28 square meters.

Solve. Show your work.

4. A rectangular pool is surrounded by a 2-yard-wide deck as shown in the diagram. Find the area of the deck.



5. A rectangular picture frame measures 25 centimeters by 15 centimeters. It has a wooden border 3 centimeters wide. To fit the picture frame, how large should a picture be?

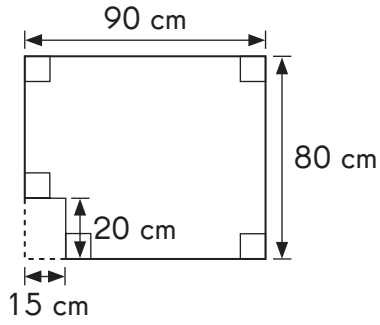


Name: _____ **Date:** _____

Solve. Show your work.

6. Renee has a piece of rectangular cardboard measuring 90 centimeters by 80 centimeters. She cuts out a small rectangular piece measuring 15 centimeters by 20 centimeters.

a. Find the area of the remaining piece of cardboard.

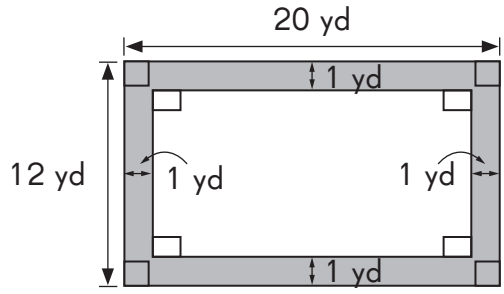


b. Find the perimeter of the remaining piece of cardboard.

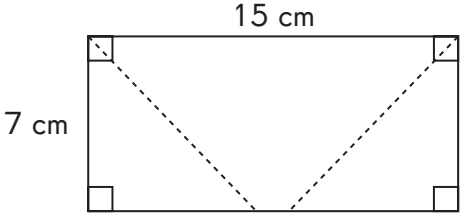
c. Compare the perimeter of the remaining piece of cardboard with that of the original piece of cardboard. Which one is greater?

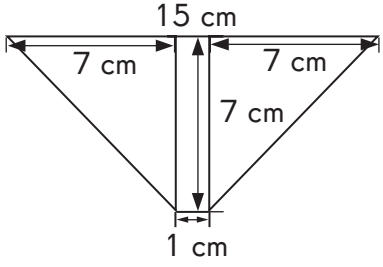
Solve. Show your work.

7. Melanie makes a path 1 yard wide around her rectangular patch of land as shown in the diagram. Find the perimeter and area of the patch of land.



8. A rectangular piece of paper measuring 15 centimeters by 7 centimeters is folded along the dotted lines to form the figure shown.





Find the area of the figure formed.

Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

1. Using the gridlines, draw as many different rectangles as you can that have an area of 12 square centimeters. Do the same for rectangles with an area of 9 square centimeters. How many rectangles can you draw for each area?

Solve. Show your work.

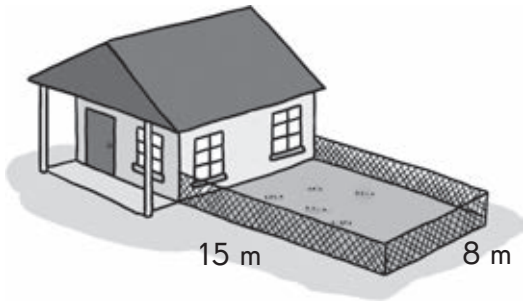
2. The length of a painting is 3 times its width. Its perimeter is 64 inches. Find the length.

3. The length of a dog run is twice its width. Its area is 50 square yards. Find the length and width of the dog run.

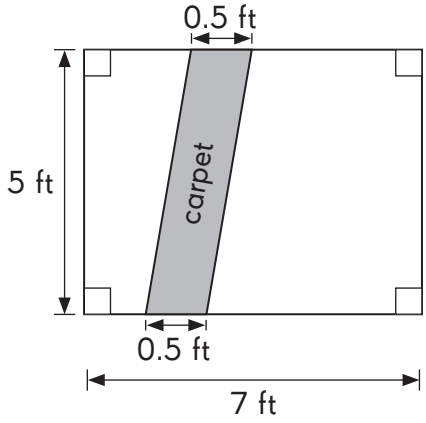
Name: _____ **Date:** _____

Solve. Show your work.

4. A rectangular garden measuring 15 meters by 8 meters is bordered by a house on one side as shown. How much fencing material is needed for the garden?

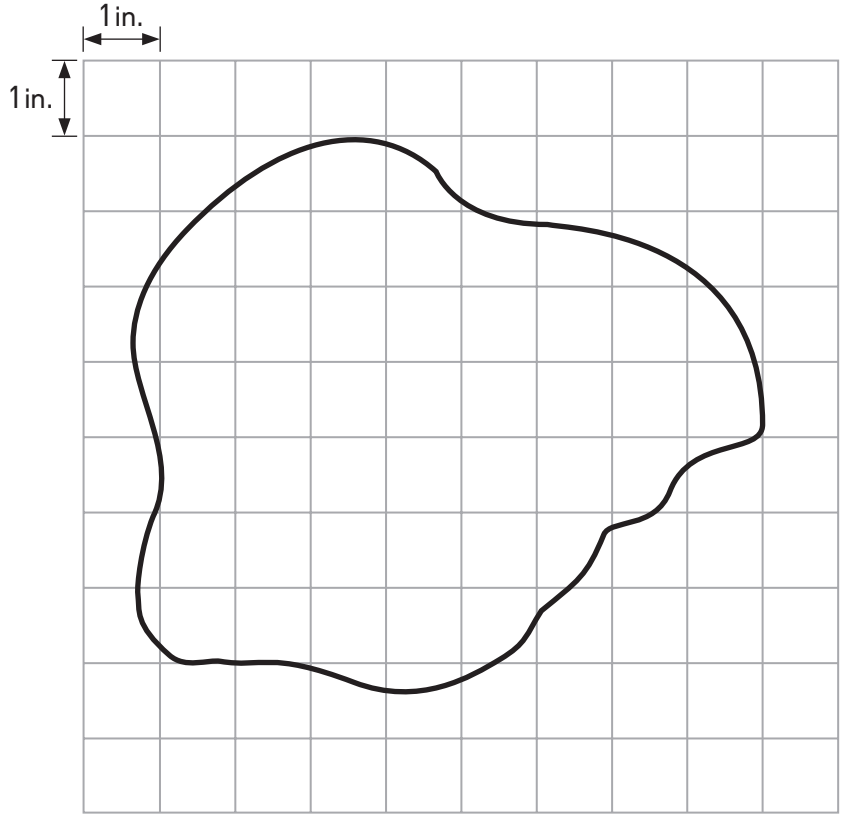


5. Mrs. Evan covered the rectangular floor of her living room with a parallelogram-shaped carpet as shown. The floor measures 5 feet by 7 feet. How much of the floor is covered with carpet?



Estimate the area.

6. Peter wanted to make a collage of a park.
How much paper would he need to make this pond?

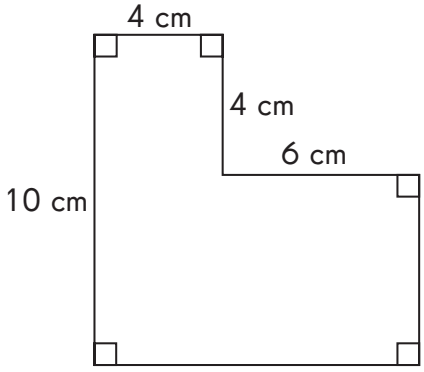


Name: _____ **Date:** _____

Put On Your Thinking Cap!

Problem Solving

1. Shawn has a piece of cardboard as shown in the diagram.
He wants to cut out as many squares as possible from the cardboard.
How many squares can he cut if each side of a square is



a. 2 centimeters long?

b. 3 centimeters long?

c. 4 centimeters long?

2. Figure A shows a piece of paper folded to form a square with 8-inch sides as shown in the diagram. Figure B shows one of the flaps opened.
Find the area of figure B.

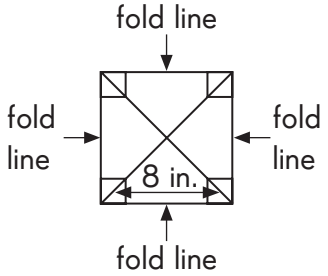


figure A

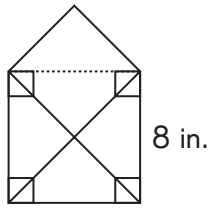
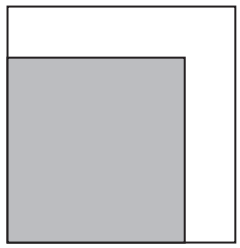


figure B

Solve. Show your work.

3. The figure shows two squares. The area of the unshaded part of the figure is 9 square feet. If the sides of both the squares are whole numbers, find the perimeter of the unshaded part.



Name: _____ Date: _____

Cumulative Review
for Chapters 1 and 2

Concepts and Skills

Write each number in standard form. *(Lesson 1.1)*

1. forty-eight thousand, six — 48,006
2. one hundred thousand — 100,000
3. sixty-nine thousand, two hundred eleven — 69,211

Write each number in word form. *(Lesson 1.1)*

4. 53,900 — fifty-three thousand, nine hundred
5. 16,658 — sixteen thousand, six hundred fifty-eight
6. 20,306 — twenty thousand, three hundred six

Fill in the blank to write the number in expanded form. *(Lesson 1.1)*

7. 13,901 = 10,000 + 3,000 + 900 + 1

Fill in the blanks. *(Lesson 1.2)*

8. 100 more than 26,542 is 26,642.
9. 78,923 is 100 less than 79,023.

Name: _____ Date: _____

Find each sum or difference. Then use front-end estimation to check that your answers are reasonable. *(Lesson 1.3 and 2.1)*

25. 1,376 + 3,428 = 4,804 — Estimated sum: 4,000
26. 7,496 − 829 = 6,667 — Estimated difference: 6,200
27. 432 + 759 = 1,191 — Estimated sum: 1,100

Find each product. Then use rounding to check that your answers are reasonable. *(Lesson 2.1 and 2.4)*

28. 383 × 2 = 766 — Estimated product: 800
29. 241 × 4 = 964 — Estimated product: 800
30. 752 × 5 = 3,760 — Estimated product: 3,500

Find each product. Then use front-end estimation to check that your answers are reasonable. *(Lesson 2.1 and 2.4)*

31. 308 × 3 = 924 — Estimated product: 900
32. 126 × 5 = 630 — Estimated product: 500
33. 415 × 4 = 1,660 — Estimated product: 1,600

Find each quotient. Then use related multiplication facts to check that your answers are reasonable. *(Lesson 2.1)*

34. 23 R 2 (4)92 — Estimated quotient: 20
35. 29 R 1 (3)78 — Estimated quotient: 30
36. 17 (4)68 — Estimated quotient: 20

Circle the number that is greater. *(Lesson 1.2)*

10. (12,630) or 6,238
11. 45,200 or (45,496)
12. 62,529 or (69,522)
13. (90,236) or 87,415

Circle the number that is less. *(Lesson 1.2)*

14. (6,563) or 48,200
15. (67,186) or 67,254
16. 74,258 or (71,852)
17. 96,125 or (69,521)

Write the set of numbers in order from least to greatest. *(Lesson 1.2)*

18. 8,654 56,207 68,543 56,719

8,654 56,207 56,719 68,543

Continue or complete each number pattern. *(Lesson 1.2)*

19. 11,500 11,000 10,500 10,000 9,500
20. 63,800 64,100 64,400 64,700 65,000
21. 27,852 29,853 31,854 33,855 35,856

Find each sum or difference. Then use rounding to check that your answers are reasonable. *(Lesson 1.3 and 2.1)*

22. 522 − 389 = 133 — Estimated difference: 100
23. 456 + 790 = 1,246 — Estimated sum: 1,300
24. 4,562 − 673 = 3,889 — Estimated difference: 3,900

Find the factors of each number. *(Lesson 2.2)*

35. 36 — 1, 2, 3, 4, 6, 9, 12, 18, and 36
36. 40 — 1, 2, 4, 5, 8, 10, 20, and 40
37. 96 — 1, 2, 3, 4, 6, 8, 12, 16, 24, 32, 48, and 96

Find the common factors of each pair of numbers. *(Lesson 2.2)*

38. 36 and 40 — 1, 2, and 4
39. 40 and 96 — 1, 2, 4, and 8

Find the greatest common factor of each pair of numbers. *(Lesson 2.2)*

40. 30 and 16 — 2
41. 48 and 18 — 6

Find the prime and composite numbers. *(Lesson 2.2)*

47 31 92 63 57 135

42. The prime numbers are 47 and 31.
43. The composite numbers are 92, 63, 57, and 135.

Name: _____ Date: _____

List the first eight multiples of each number. *(Lesson 2.3)*

44. 4 4, 8, 12, 16, 20, 24, 28, and 32

45. 6 6, 12, 18, 24, 30, 36, 42, and 48

46. 9 9, 18, 27, 36, 45, 54, 63, and 72

Find the first two common multiples of each pair of numbers. *(Lesson 2.3)*

47. 4 and 6 12 and 24

48. 6 and 9 18 and 36

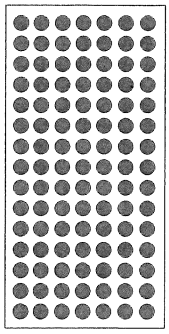
Find the least common multiple of each pair of numbers. *(Lesson 2.3)*

49. 8 and 12 24

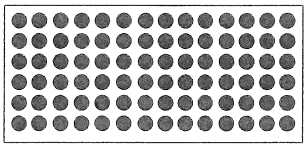
50. 27 and 36 108

Solve using an array model. *(Lesson 2.4)*

51. $15 \times 7 =$ 105



52. $6 \times 14 =$ 84



Workbook A p. 45

Name: _____ Date: _____

Problem Solving

Solve. Show your work.

55. Make a 5-digit number using these clues.
The digit in the thousands place is 5.
The value of the digit in the ten thousands place is 20,000.
The digit in the tens place is 8.
One of the digits is a 0 and it is next to the digit 8.
The digit in the ones place is 2 less than the digit in the tens place.
The number is 2 5, 0 8 6.

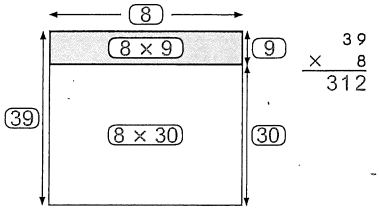
56. 3,219 milliliters of water and 185 milliliters of orange syrup are mixed to make orange juice. About how much orange juice will there be?

Answers vary.
Accept 3,400 mL; 3,100 mL.

Workbook A p. 47

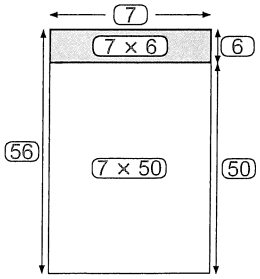
Solve using an area model. *(Lesson 2.4)*

53. $39 \times 8 = 312$



$$\begin{array}{r} 39 \\ \times \quad 8 \\ \hline 312 \end{array}$$

54. $56 \times 7 = 392$



$$\begin{array}{r} 56 \\ \times \quad 7 \\ \hline 392 \end{array}$$

Workbook A p. 46

Practice and Apply

Workbook pages for Chapter 3, Lesson 3.1

Name: _____ Date: _____

Chapter 3

Whole Number Multiplication and Division

Practice 1 Multiplying by a 1-Digit Number

Multiply 962 by 6 and find the missing numbers.

Example

Step 1 2 ones × 6 = 12 ones
= 1 ten 2 ones

$$\begin{array}{r} {\scriptstyle 2} \\ 962 \\ \times\ \ 6 \\ \hline 12 \end{array}$$

1. Step 2 6 tens × 6 = 36 tens
= 3 hundreds 6 tens

$$\begin{array}{r} {\scriptstyle 60} \\ 962 \\ \times\ \ 6 \\ \hline 360 \end{array}$$

2. Step 3 9 hundreds × 6 = 54 hundreds
= 5 thousands 4 hundreds

$$\begin{array}{r} {\scriptstyle 900} \\ 962 \\ \times\ \ 6 \\ \hline 5{,}400 \end{array}$$

3.

$$\begin{array}{r} 962 \\ \times\ \ 6 \\ \hline 12 \\ 360 \\ 5{,}400 \\ \hline 5{,}772 \end{array}$$

2 ones × 6
6 tens × 6
9 hundreds × 6

Workbook A p. 49

Name: _____ Date: _____

Multiply.

Example

$$\begin{array}{r} 9{,}123 \\ \times\ \ \ \ 3 \\ \hline 27{,}369 \end{array}$$

9.

$$\begin{array}{r} 6{,}055 \\ \times\ \ \ \ 5 \\ \hline 30{,}275 \end{array}$$

10.

$$\begin{array}{r} 2{,}134 \\ \times\ \ \ \ 6 \\ \hline 12{,}804 \end{array}$$

11.

$$\begin{array}{r} 6{,}920 \\ \times\ \ \ \ 4 \\ \hline 27{,}680 \end{array}$$

12.

$$\begin{array}{r} 2{,}013 \\ \times\ \ \ \ 7 \\ \hline 14{,}091 \end{array}$$

13.

$$\begin{array}{r} 1{,}474 \\ \times\ \ \ \ 6 \\ \hline 8{,}844 \end{array}$$

14.

$$\begin{array}{r} 8{,}572 \\ \times\ \ \ \ 8 \\ \hline 68{,}576 \end{array}$$

15.

$$\begin{array}{r} 6{,}003 \\ \times\ \ \ \ 9 \\ \hline 54{,}027 \end{array}$$

Workbook A p. 51

Multiply 9,086 by 7 and find the missing numbers.

4. Step 1 6 ones × 7 = 42 ones
= 4 tens 2 ones

$$\begin{array}{r} {\scriptstyle 6} \\ 9{,}086 \\ \times\ \ 7 \\ \hline 42 \end{array}$$

5. Step 2 8 tens × 7 = 56 tens
= 5 hundreds 6 tens

$$\begin{array}{r} {\scriptstyle 80} \\ 9{,}086 \\ \times\ \ 7 \\ \hline 560 \end{array}$$

6. Step 3 0 hundreds × 7 = 0 hundreds

$$\begin{array}{r} {\scriptstyle 000} \\ 9{,}086 \\ \times\ \ 7 \\ \hline 0 \end{array}$$

7. Step 4 9 thousands × 7 = 63 thousands
= 6 ten thousands 3 thousands

$$\begin{array}{r} {\scriptstyle 9{,}000} \\ 9{,}086 \\ \times\ \ 7 \\ \hline 63{,}000 \end{array}$$

8.

$$\begin{array}{r} 9{,}086 \\ \times\ \ 7 \\ \hline 42 \\ 560 \\ 0 \\ 63{,}000 \\ \hline 63{,}602 \end{array}$$

6 ones × 7
8 tens × 7
0 hundreds × 7
9 thousands × 7

Find each product. Then solve the riddle.

Example

425 × 6 = 2,550 (v)

16. 964 × 8 = 7,712 (a)

17. 682 × 5 = 3,410 (r)

18. 1,685 × 3 = 5,055 (w)

19. 1,936 × 4 = 7,744 (d)

20. 3,270 × 3 = 9,810 (e)

How do you say good-bye to the ocean?
Match the letters to the answers below to find out.

You	W	a	v	e
	5,055	7,712	2,550	9,810

Practice and Apply

Workbook pages for Chapter 3, Lesson 3.2

Name: _____ Date: _____

Practice 2 Multiplying by a 2-Digit Number

Write the missing numbers. Then solve the riddle.

Example

15 × 10 = 150 (r) 63 × 10 = 630 (e)

1. 5 × 60 = 5 × 6 tens
= 30 tens
= 300 (n)

2. 16 × 20 = 16 × 2 tens
= 32 tens
= 320 (i)

3. 33 × 40 = 33 × 4 tens
= 132 tens
= 1,320 (l)

4. 29 × 30 = 29 × 3 tens
= 87 tens
= 870 (u)

5. 41 × 60 = 41 × 6 × 10
= 246 × 10
= 2,460 (B)

6. 96 × 40 = 96 × 10 × 4
= 960 × 4
= 3,840 (j)

7. 618 × 50
= 618 × 5 × 10
= 3,090 × 10
= 30,900 (o)

8. 752 × 70
= 752 × 10 × 7
= 7,520 × 7
= 52,640 (d)

What is the French word that has the same meaning as 'hello'?
Match the letters to the products below to find out.

B	o	n	j	o	u	r
2,460	30,900	300	3,840	30,900	870	150

Name: _____ Date: _____

Multiply. Find the missing numbers.

Example

×		6	7
		3	5
	3	3	5
2,	0	1	0
2,	3	4	5

17.

×		6	1
		8	6
	3	6	6
4,	8	8	0
5,	2	4	6

18.

×		8	7	2
			6	2
	1,	7	4	4
5	2,	3	2	0
5	4,	0	6	4

19.

×			7	0
			4	9
	6,	3	8	1
2	8,	3	6	0
3	4,	7	4	1

Estimate each product. Round each number to its greatest place value.

Example

67 × 35 is about 70 × 40.
70 × 40 = 2,800

20. 61 × 86 is about 60 × 90.
60 × 90 = 5,400

21. 872 × 62 is about 900 × 60.
900 × 60 = 54,000

22. 709 × 49 is about 700 × 50.
700 × 50 = 35,000

Find each product.

9. 42 × 10 = 420

10. 786 × 10 = 7,860

11. 16 × 5 = 80
16 × 50 = 800

12. 137 × 6 = 822
137 × 60 = 8,220

13. 23 × 4 = 92
23 × 40 = 920

14. 405 × 9 = 3,645
405 × 90 = 36,450

Find each product.

15. 70 × 800
7 × 8 = 56
7 × 80 = 560
7 × 800 = 5,600
So, 70 × 800 = 56,000.

16. 300 × 90
3 × 9 = 27
3 × 90 = 270
30 × 90 = 2,700
So, 300 × 90 = 27,000.

Multiply. Then estimate to check that your answers are reasonable. Round each number to its greatest place value.

Example

14 × 18 = 252

14	14 is about 10.
× 18	18 is about 20.
112	Estimate:
140	10 × 20 = 200
252	

252 is close to 200. So, the answer is reasonable.

23. 48 × 21 = 1,008

48	
× 21	
48	
960	
1,008	

Estimate: 50 × 20 = 1,000
Yes, 1,008 is reasonable.

24. 196 × 34 = 6,664

196	
× 34	
784	
5,880	
6,664	

Estimate: 200 × 30 = 6,000
Yes, 6,664 is reasonable.

25. 608 × 73 = 44,384

608	
× 73	
1,824	
42,560	
44,384	

Estimate: 600 × 70 = 42,000
Yes, 44,384 is reasonable.

26. 721 × 54 = 38,934

721	
× 54	
2,884	
36,050	
38,934	

Estimate: 700 × 50 = 35,000
Yes, 38,934 is reasonable.

Practice and Apply

Workbook pages for Chapter 3, Lesson 3.3

Name: ______________________ Date: ______________

Practice 3 Modeling Division with Regrouping

Lisa cannot remember the steps to divide.
Help her complete the steps.

Example

1.
```
    1
3 ) 4  6  8
    3  0  0
```
→
```
    [1]
3 ) 4   6   8
   [3] [0] [0]
   [1]  6  [8]
```
→
```
    [1] [5]
3 ) 4   6   8
   [3] [0] [0]
   [1]  6  [8]
   [1] [5] [0]
       [1]  8
```
→
```
    [1] [5] [6]
3 ) 4   6   8
   [3] [0] [0]
   [1]  6  [8]
   [1] [5] [0]
       [1]  8
       [1] [8]
           [0]
```

2.
```
    [2]
4 ) 9   3   6
   [8] [0] [0]
```
→
```
    [2]
4 ) 9   3   6
   [8] [0] [0]
   [1]  3  [6]
```
→
```
    [2] [3]
4 ) 9   3   6
   [8] [0] [0]
   [1]  3  [6]
   [1] [2] [0]
       [1]  6
```
→
```
    [2] [3] [4]
4 ) 9   3   6
   [8] [0] [0]
   [1]  3  [6]
   [1] [2] [0]
       [1]  6
       [1] [6]
           [0]
```


Name: ______________________ Date: ______________

Divide. Then solve the riddle.

9.
```
    1 7 3          1 9 0          1 6 3          1 7 1
2 ) 3 4 6      4 ) 7 6 0      3 ) 4 8 9      5 ) 8 5 5
    2 0 0          4 0 0          3 0 0          5 0 0
    1 4 6          3 6 0          1 8 9          3 5 5
    1 4 0          3 6 0          1 8 0          3 5 0
        6              0              9              5
        6                             9              5
        0                             0              0
   (S)            (T)            (U)            (E)
```

```
    2 9 0          1 3 2          1 4 1          1 2 5
3 ) 8 7 0      4 ) 5 2 8      5 ) 7 0 5      3 ) 3 7 5
    6 0 0          4 0 0          5 0 0          3 0 0
    2 7 0          1 2 8          2 0 5            7 5
    2 7 0          1 2 0          2 0 0            6 0
        0              8              5            1 5
                       8              5            1 5
                       0              0              0
   (M)            (P)            (K)            (R)
```

Which pet makes the loudest noise?
Match the letters to the quotients below to find out.

T	r	u	m	p	e	t
190	125	163	290	132	171	190

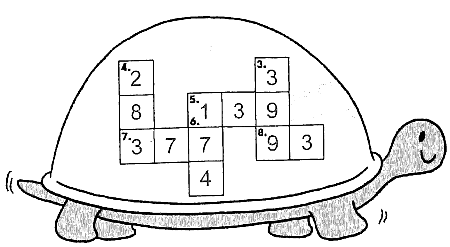
Divide. Then use the quotients to complete the number puzzle.

Down

```
3.      3 9 9       4.      2 8 3       5.      1 7 4
    2 ) 7 9 8           3 ) 8 4 9           4 ) 6 9 6
        6 0 0               6 0 0               4 0 0
        1 9 8               2 4 9               2 9 6
        1 8 0               2 4 0               2 8 0
          1 8                   9                 1 6
          1 8                   9                 1 6
            0                   0                   0
```

Across

```
6.      1 3 9       7.      3 7 7       8.        9 3
    5 ) 6 9 5           2 ) 7 5 4           4 ) 3 7 2
        5 0 0               6 0 0               3 6 0
        1 9 5               1 5 4                 1 2
        1 5 0               1 4 0                 1 2
          4 5                 1 4                   0
          4 5                 1 4
            0                   0
```



Divide.

10. 516 ÷ 2 = 258

```
      2 5 8
  2 ) 5 1 6
      4 0 0
      1 1 6
      1 0 0
        1 6
        1 6
          0
```

11. 144 ÷ 3 = 48

```
        4 8
  3 ) 1 4 4
      1 2 0
        2 4
        2 4
          0
```

12. 396 ÷ 4 = 99

```
        9 9
  4 ) 3 9 6
      3 6 0
        3 6
        3 6
          0
```

13. 885 ÷ 5 = 177

```
      1 7 7
  5 ) 8 8 5
     -5 0 0
      3 8 5
      3 5 0
        3 5
        3 5
          0
```

Name: _____ Date: _____

Look at the steps for dividing a 3-digit number by a 1-digit number.

Example

This shows the steps in division.

Step 1	Step 2	Step 3	Step 4	Step 5
1 5)6 9 5 5 0 0 1	1 5)6 9 5 5 0 0 1 9 5	1 3 5)6 9 5 5 0 0 1 9 5 1 5 0 4	1 3 5)6 9 5 5 0 0 1 9 5 1 5 0 4 5	1 3 9 5)6 9 5 5 0 0 1 9 5 1 5 0 4 5 4 5 0

Write a number for each instruction box to match the instruction with the correct step for division. The first one has been done for you.

Divide the hundreds by 5. — Step 1

Divide the ones by 5. — Step 5

Divide the tens by 5. — Step 3

Regroup the remaining hundreds. Add the tens and ones. — Step 2

Regroup the remaining tens. Add the ones. — Step 4

Workbook A p. 61

Complete the division.

14.

Step 1	Step 2	Step 3	Step 4	Step 5
1 4)7 5 2 4 0 0 3	1 4)7 5 2 4 0 0 3 5 2	1 8 4)7 5 2 4 0 0 3 5 2 3 2 0 3	1 8 4)7 5 2 4 0 0 3 5 2 3 2 0 3 2	1 8 8 4)7 5 2 4 0 0 3 5 2 3 2 0 3 2 3 2 0

Then write the steps, using the exercise on page 53 as a guide.

Step 1 Divide the hundreds by 4.

Step 2 Regroup the remaining hundreds.
Add the tens and ones.

Step 3 Divide the tens by 4.

Step 4 Regroup the remaining tens.
Add the ones.

Step 5 Divide the ones by 4.

Notes

Workbook pages for Chapter 3, Lesson 3.4

Name: _____ Date: _____

Practice 4 Dividing by a 1-Digit Number

Fill in the blanks to find each quotient.

Example

4,900 ÷ 7 = 49 hundreds ÷ 7
= 7 hundreds
= 700

1. 6,000 ÷ 3 = 6 thousands ÷ 3
= 2 thousands
= 2,000

2. 8,000 ÷ 2 = 8 thousands ÷ 2
= 4 thousands
= 4,000

3. 2,400 ÷ 6 = 24 hundreds ÷ 6
= 4 hundreds
= 400

Estimate each quotient.

4. 64 ÷ 3 is about 60 ÷ 3
= 20

5. 448 ÷ 9 is about 450 ÷ 9
= 50

6. 763 ÷ 4 is about 800 ÷ 4
= 200

7. 127 ÷ 5 is about 100 ÷ 5
= 20

Workbook A p. 63

Name: _____ Date: _____

Divide. Then estimate to check that your answers are reasonable.

Example

$$\begin{array}{r} 699 \\ 9\overline{)6291} \\ 54 \\ \hline 89 \\ 81 \\ \hline 81 \\ 81 \\ \hline 0 \end{array}$$

Estimate:
6,291 is about 6,300.
6,300 ÷ 9 = 700

11. $\begin{array}{r} 905 \\ 4\overline{)3620} \end{array}$

Estimate:
3,620 is about 3,600.
3,600 ÷ 4 = 900

12. $\begin{array}{r} 401 \\ 7\overline{)2807} \end{array}$

Estimate:
2,807 is about 2,800.
2,800 ÷ 7 = 400

13. $\begin{array}{r} 307 \\ 6\overline{)1842} \end{array}$

Estimate:
1,842 is about 1,800.
1,800 ÷ 6 = 300

Workbook A p. 65

Divide and find the missing numbers.

Example

$$\begin{array}{r} 213 \\ 3\overline{)639} \\ 6 \\ \hline 39 \\ 30 \\ \hline 9 \\ 9 \\ \hline 0 \end{array}$$

8.

$$\begin{array}{r} 103 \\ 9\overline{)927} \\ 9 \\ \hline 27 \\ 0 \\ \hline 27 \\ 27 \\ \hline 0 \end{array}$$

9.

$$\begin{array}{r} 3240 \\ 2\overline{)6480} \\ 6 \\ \hline 48 \\ 4 \\ \hline 80 \\ 8 \\ \hline 0 \\ 0 \\ \hline 0 \end{array}$$

10.

$$\begin{array}{r} 312 \\ 7\overline{)2184} \\ 21 \\ \hline 84 \\ 70 \\ \hline 14 \\ 14 \\ \hline 0 \end{array}$$

Workbook A p. 64

Find each quotient. Then estimate to check that your answers are reasonable.

Example

1,144 ÷ 9 = 127 R 1

$$\begin{array}{r} 127 \text{ R } 1 \\ 9\overline{)1144} \\ 9 \\ \hline 24 \\ 18 \\ \hline 64 \\ 63 \\ \hline 1 \end{array}$$

Estimate: 1,144 ÷ 9 is about 900 ÷ 9 = 100. The answer 127 R 1 is reasonable.

14. 6,514 ÷ 4 = 1,628 R 2

$$\begin{array}{r} 1628 \text{ R } 2 \\ 4\overline{)6514} \\ 4 \\ \hline 25 \\ 24 \\ \hline 14 \\ 12 \\ \hline 2 \end{array}$$

6,514 ÷ 4 is about 6,000 ÷ 4 = 1,500. The answer 1,628 R 2 is reasonable.

15. 1,340 ÷ 7 = 191 R 3

$$\begin{array}{r} 191 \text{ R } 3 \\ 7\overline{)1340} \\ 7 \\ \hline 64 \\ 63 \\ \hline 10 \\ 7 \\ \hline 3 \end{array}$$

1,340 ÷ 7 is about 1,400 ÷ 7 = 200. The answer 191 R 3 is reasonable.

16. 9,346 ÷ 8 = 1,168 R 2

$$\begin{array}{r} 1168 \text{ R } 2 \\ 8\overline{)9346} \\ 8 \\ \hline 13 \\ 8 \\ \hline 54 \\ 48 \\ \hline 6 \end{array}$$

9,346 ÷ 8 is about 8,000 ÷ 8 = 1,000. The answer 1,168 R 2 is reasonable.

Workbook A p. 66

Name: _____ Date: _____

Practice 5 Real-World Problems: Multiplication and Division

Solve. Show your work.

Example

A company has 4,059 people. Their names are listed in alphabetical order and then divided into groups of 5.

How many groups of 5 names are there and how many names are left?

4,059 ÷ 5 = 811 R 4
There are 811 groups of 5 names, and 4 names are left.

If the number of men in the company is 600 times the number of names left, how many men are there in the company?

600 × 4 = 2,400
There are 2,400 men in the company.

1. Factory A produces 326 sweaters in a day. Factory B produces 107 more sweaters a day than Factory A.

a. How many sweaters does Factory B produce in a day?

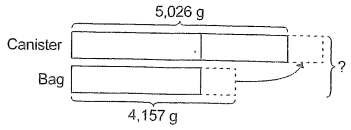
326 + 107 = 433
Factory B produces 433 sweaters a day.

b. How many sweaters do the two factories produce in 68 days?

433 + 326 = 759
759 × 68 = 51,612
The factories produce 51,612 sweaters in 68 days.

Name: _____ Date: _____

4. Kamala had 5,026 grams of flour in a canister. She bought a 4,157-gram bag of flour. She poured some flour from the bag to the canister. As a result, the mass of the flour in the canister is now twice the mass of the flour left in the bag. How much flour is in the bag now?

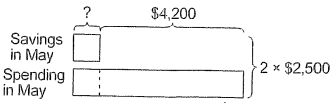


5,026 + 4,157 = 9,183
3 units → 9,183
1 unit → 9,183 ÷ 3 = 3,061
There are 3,061 grams of flour in the bag now.

5. Mr. Shea saved $2,500 in April. His monthly salary is twice the amount he saved in April. In May, he saved a certain amount of money. He spent $4,200 more than the amount he saved.

a. How much is his monthly salary?

b. How much did he save in May?



a. 2 × $2,500 = $5,000
His monthly salary is $5,000
b. units → $5,000 − $4,200 = $800
He saved $800 in May.

2. In her shop, Lee had a piece of fabric measuring 150 meters. A customer asked her to sew 10 cushion covers, each requiring 3 meters of fabric. Another customer bought 21 meters of the same fabric. How much fabric does Lee have left?

10 × 3 = 30

150 − 30 = 120

120 − 21 = 99

She has 99 meters of fabric left.

3. A bakery produces 3,000 loaves of bread.
The bread is delivered to 75 stores.
Of the 75 stores, 67 receive 2,000 loaves of bread altogether.
The remaining stores receive an equal number of loaves of bread.
How many loaves does each of the remaining stores receive?

75 − 67 = 8

3,000 − 2,000 = 1,000

1,000 ÷ 8 = 125

Each of the remaining stores receives 125 loaves.

Example

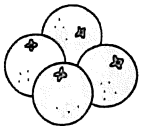
Before lunch, Cindy packed 850 oranges, and Glen packed 470 fewer oranges than Cindy. Glen went home after lunch, but Cindy went back to work. That afternoon, Cindy packed 3 times as many oranges as Glen had packed in the morning.

a. How many oranges did Glen pack?

Let *s* represent the number of oranges Glen packed.
850 − 470 = *s*
s = 380
Glen packed 380 oranges.

b. How many oranges did Cindy pack altogether?

Let *t* represent the number of oranges Cindy packed.
t = 3 × 380 + 850
= 1,140 + 850
= 1,990
Cindy packed 1,990 oranges.



c. Cindy packed the oranges in bags of 5. How many bags of oranges did Cindy pack?

Let *u* represent the number of bags Cindy packed.
1,990 ÷ 5 = *u*
u = 398
Cindy packed 398 bags.

Use different letters to represent the unknown numbers. Then solve.

6. Ms. Edstrom has a budget of $1,500 to spend on a table and 6 chairs.
The total price is $249 under her budget amount.
The table costs 3 times as much as a chair.
What is the price of the table?

Let *k* be total spent, *c* be the price of a chair, and *t* be the price of the table.
k = 1,500 − 249 = 1,251
c = 1,251 ÷ 9 = 139
t = 139 × 3 = 417
The price of the table is $417.

Name: _____ Date: _____

7. Amy has $510. Josephine has $160 less than Amy and $65 more than Ben. Ben used all his money to buy some books for $9 each.

a. How much does Josephine have?

Let i be the amount of money Josephine has.
$i = 510 - 160$
$= 350$
Josephine has $350.

b. How much money does Ben have?

Let b be the amount of money Ben has.
$b = 350 - 65$
$= 285$
Ben has $285.

c. How many books did Ben buy?

Let d be the number of books Ben bought.
$d = 285 \div 9$
$= 31$ R 6
Ben bought 31 books.

d. How much does he have left? $6

Workbook A p. 71

Name: _____ Date: _____

Math Journal

Look at each problem. Use estimation to explain why the answers are not reasonable.

Example

$5,268 \times 8 = 2,144$

Explain.

5,268 is about 5,000

5,000 × 8 = 40,000.

So the answer is too small.

1. $725 \times 6 = 700$

Explain.

725 is about 700.

700 × 6 = 4,200.

So the answer is too small.

2. $497 \times 21 = 1,291$

Explain.

497 is about 500 and 21 is about 20.

500 × 20 = 10,000.

So the answer is too small.

Workbook A p. 73

Lindsay and Menon have 1,240 stickers. Menon has 4 times as many stickers as Lindsay. Menon decides to have 6 stickers on each page of an album.

a. How many stickers does Menon have?

Let l be the number of stickers Lindsay has.
$l = 1,240 \div 5$
$= 248$
Let m be the number of stickers Menon has.
$m = 248 \times 4$
$= 992$
Menon has 992 stickers.

b. After Menon fills some pages in the album, how many stickers are left over?

$992 \div 6 = 165$ R 2
2 stickers are left over.

c. How many stickers does he need to complete one more page?

$6 - 2 = 4$
He needs 4 more stickers.

Workbook A p. 72

Use estimation to explain why the answer is not reasonable.

3. $6,021 \div 3 = 207$

Explain.

6,000 is close to 6021.

6,000 ÷ 3 = 2,000.

So the answer is too small.

Solve. Show your work.

4. Look at the number sentence.

$72 \div 6 = 12$

How would you use this to find the missing quotient?

$7,200 \div 6 =$ ☐

7,200 = 72 hundreds

72 hundreds ÷ 6 = 12 hundreds

= 1,200

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Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

Charlie has 1,243 stamps. He gives away 12 stamps. His father gives him 415 stamps. He divides as many stamps as possible equally among 4 albums.

1. How many stamps did he place in each album?

1,243 – 12 = 1,231
1,231 + 415 = 1,646
1,646 ÷ 4 = 411 R2
He placed 411 stamps in each album.

2. Based on your answer in **Exercise 1**, how many stamps are left over?

2 stamps are left over.

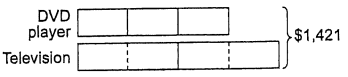
Thinking skills: Identifying relationships; Sequencing

Put On Your Thinking Cap!

Problem Solving

1. The cost of 2 televisions and 3 DVD players is $1,421.
The cost of 1 DVD player is half the cost of 1 television.
What is the cost of 1 television?

Solution:



1,421 ÷ 7 = 203 (cost of 1 DVD player in $)
203 × 2 = 406 (cost of 1 television in $)
1 television costs $406.

Strategy: Use a model

Practice and Apply
Workbook pages for Chapter 6, Lesson 6.2

Name: _____ Date: _____

Chapter 6

Fractions and Mixed Numbers

Practice 1 Adding Fractions

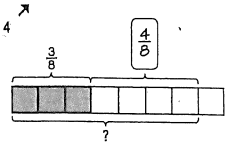
Find the equivalent fraction. Complete the model. Then add.

Example

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

$= \frac{7}{8}$

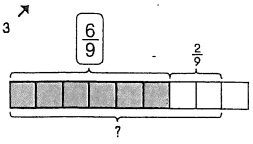
$\frac{1}{2} = \frac{4}{8}$ (×4)



1. $\frac{2}{3} + \frac{2}{9} = \frac{6}{9} + \frac{2}{9}$

$= \frac{8}{9}$

$\frac{2}{3} = \frac{6}{9}$ (×3)



Workbook A p. 147

Add. Write each answer in simplest form.

2. $\frac{3}{5} + \frac{3}{10} = \frac{6}{10} + \frac{3}{10}$

$= \frac{9}{10}$

3. $\frac{5}{12} + \frac{1}{3} = \frac{5}{12} + \frac{4}{12}$

$= \frac{9}{12}$

$= \frac{3}{4}$

4. Find the sum of $\frac{1}{6}$ and $\frac{1}{12}$.

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

5. Add $\frac{1}{4}$ to the answer in **Exercise 4**.

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

6. What is the sum of $\frac{1}{8}$, $\frac{1}{4}$, and $\frac{3}{8}$?

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

$= \frac{6}{8} = \frac{3}{4}$

7. Add $\frac{1}{3}$, $\frac{3}{12}$, and $\frac{5}{12}$.

$\frac{1}{3} + \frac{3}{12} + \frac{5}{12} = \frac{4}{12} + \frac{3}{12} + \frac{5}{12}$

$= \frac{12}{12} = 1$

Workbook A p. 148

Name: _____ Date: _____

Practice 2 Subtracting Fractions

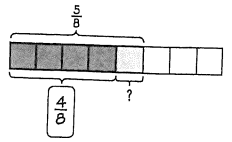
Find the equivalent fraction. Complete the model. Then subtract.

Example

$\frac{5}{8} - \frac{1}{2} = \frac{5}{8} - \frac{4}{8}$

$= \frac{1}{8}$

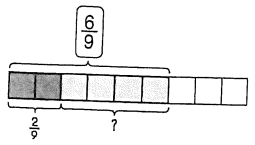
$\frac{1}{2} = \frac{4}{8}$ (×4)



1. $\frac{2}{3} - \frac{2}{9} = \frac{6}{9} - \frac{2}{9}$

$= \frac{4}{9}$

$\frac{2}{3} = \frac{6}{9}$ (×3)



Workbook A p. 149

Subtract. Write each answer in simplest form.

2. $\frac{8}{10} - \frac{1}{5} = \frac{8}{10} - \frac{2}{10}$

$= \frac{6}{10}$

$= \frac{3}{5}$

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

$= \frac{4}{12}$

$= \frac{1}{3}$

4. The difference between $\frac{7}{8}$ and $\frac{1}{4}$ is $\frac{5}{8}$.

$\frac{7}{8} - \frac{2}{8} = \frac{5}{8}$

5. The difference between $\frac{7}{12}$ and $\frac{1}{3}$ is $\frac{1}{4}$.

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

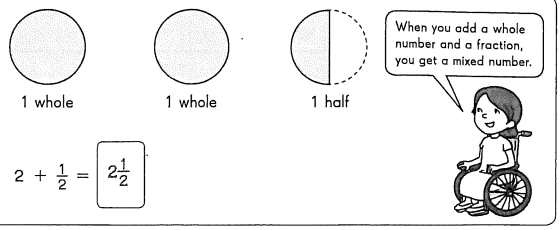
Workbook A p. 150

Name: _____ Date: _____

Practice 3 Mixed Numbers

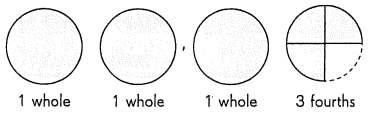
Write a mixed number for each model.

Example



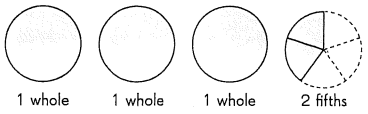
$2 + \frac{1}{2} = 2\frac{1}{2}$

1.



$3 + \frac{3}{4} = 3\frac{3}{4}$

2.



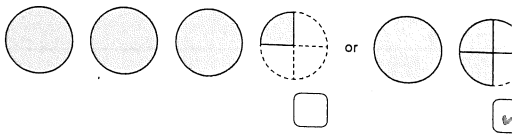
$3 + \frac{2}{5} = 3\frac{2}{5}$

Workbook A p. 151

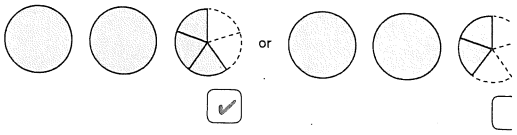
Name: _____ Date: _____

Check (✓) the correct model.

6. Which model shows $1\frac{3}{4}$ shaded?



7. Which model shows $2\frac{3}{5}$ shaded?



Write each answer as a mixed number.

8. $4 + \frac{1}{4} = 4\frac{1}{4}$

9. $3 + \frac{5}{9} = 3\frac{5}{9}$

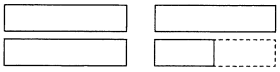
10. $\frac{5}{8} + 2 = 2\frac{5}{8}$

11. $\frac{3}{5} + 4 = 4\frac{3}{5}$

Workbook A p.

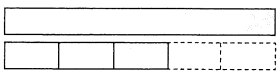
Write a mixed number for each model.

3.



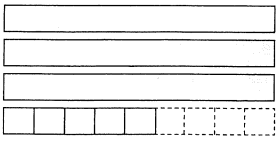
3 wholes and 1 half is $3\frac{1}{2}$.

4.



1 whole and 3 fifths is $1\frac{3}{5}$.

5.

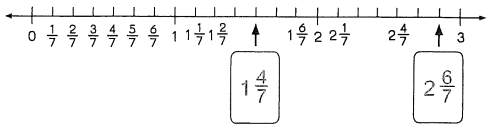


3 wholes and 5 ninths is $3\frac{5}{9}$.

Workbook A p. 152

Write the correct mixed number in each box.

12.

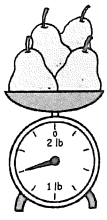


$1\frac{4}{7}$ $2\frac{6}{7}$

Write a mixed number for each item.

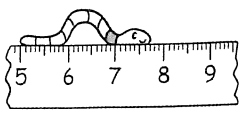
13. The pears have a weight of

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



14. The worm started crawling from 0 centimeters.

It has crawled $7\frac{7}{10}$ centimeters.

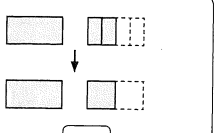


Workbook A p.

Name: _____ Date: _____

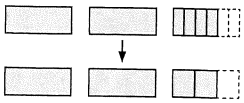
Write each mixed number in simplest form.

Example



$1\frac{2}{4} = 1\frac{1}{2}$

15.



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

16. $3\frac{4}{8} = 3\frac{1}{2}$

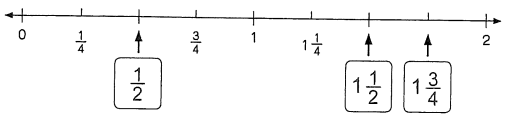
17. $5\frac{6}{9} = 5\frac{2}{3}$

18. $6\frac{4}{12} = 6\frac{1}{3}$

19. $4\frac{3}{6} = 4\frac{1}{2}$

Write each fraction and mixed number in a box to show its correct location on the number line.

20. $1\frac{1}{2}$ **21.** $\frac{1}{2}$ **22.** $1\frac{3}{4}$



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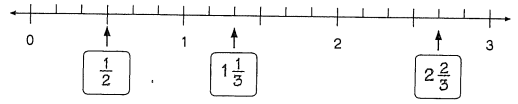
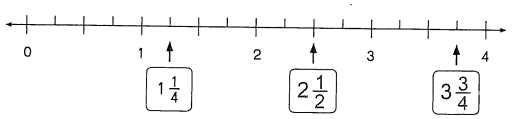
Fill in the boxes with fractions or mixed numbers.
Express each answer in simplest form.

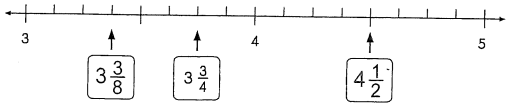
Example



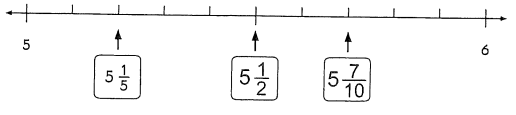
23.



24.



25.



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Notes

Practice and Apply

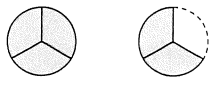
Workbook pages for Chapter 6, Lesson 6.4

Name: _____ Date: _____

Practice 4 Improper Fractions

Write each mixed number as an improper fraction.

Example



$1\frac{2}{3}$

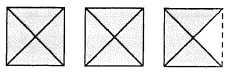
$1 = \frac{3}{3}$ thirds

$\frac{2}{3} = \frac{2}{3}$ thirds

$1\frac{2}{3} = \frac{5}{3}$ thirds

$= \boxed{\frac{5}{3}}$

1.



$2\frac{3}{4}$

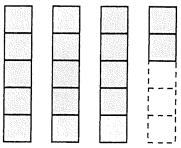
$2 = \frac{8}{4}$ fourths

$\frac{3}{4} = \frac{3}{4}$ fourths

$2\frac{3}{4} = \frac{11}{4}$ fourths

$= \boxed{\frac{11}{4}}$

2.



$3\frac{2}{5}$

$3 = \frac{15}{5}$ fifths

$\frac{2}{5} = \frac{2}{5}$ fifths

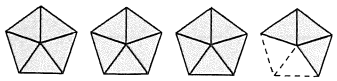
$3\frac{2}{5} = \frac{17}{5}$ fifths

$= \boxed{\frac{17}{5}}$

Name: _____ Date: _____

Write the improper fraction for the shaded parts.

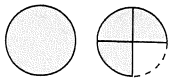
6.



$3\frac{3}{5} = \boxed{\frac{18}{5}}$

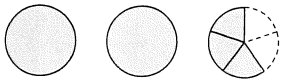
Write a mixed number and an improper fraction for each model.

Example



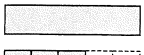
Mixed number: $\boxed{1\frac{3}{4}}$ Improper fraction: $\boxed{\frac{7}{4}}$

7.



Mixed number: $\boxed{2\frac{3}{5}}$ Improper fraction: $\boxed{\frac{13}{5}}$

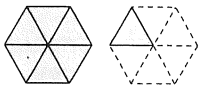
8.



Mixed number: $\boxed{1\frac{3}{5}}$ Improper fraction: $\boxed{\frac{8}{5}}$

Write the improper fractions for the shaded parts.

3.

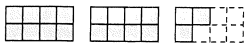


There are 7 sixths in $1\frac{1}{6}$.

$1\frac{1}{6} = \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}}$

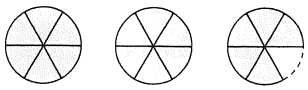
$= \boxed{\frac{7}{6}}$

4.



$2\frac{3}{8} = \boxed{\frac{19}{8}}$

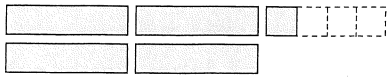
5.



$2\frac{5}{6} = \boxed{\frac{17}{6}}$

Write a mixed number and an improper fraction for each model.

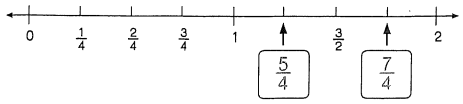
9.



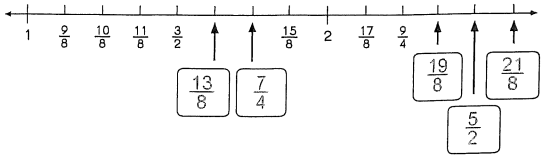
Mixed number: $\boxed{4\frac{1}{4}}$ Improper fraction: $\boxed{\frac{17}{4}}$

Write the missing improper fraction in each box. Express the answers in simplest form.

10.

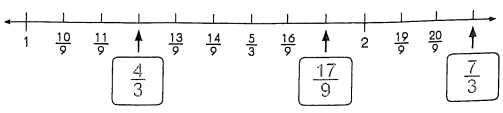


11.



Write each improper fraction in a box to show its correct location on the number line.

12. $\frac{4}{3}$ **13.** $\frac{7}{3}$ **14.** $\frac{17}{9}$



Name: _____ Date: _____

Practice 5 Renaming Improper Fractions and Mixed Numbers

Express each improper fraction as a mixed number.

Example

$\frac{8}{5} = \frac{5}{5} + \boxed{3}{5}$

$= 1 + \boxed{3}{5}$

$= 1\,\boxed{3}{5}$

1. $\frac{12}{7} = \boxed{7}{7} + \boxed{5}{7}$

$= 1 + \boxed{5}{7}$

$= 1\,\boxed{5}{7}$

2. $\frac{9}{4} = \boxed{8}{4} + \boxed{1}{4}$

$= 2 + \boxed{1}{4}$

$= 2\,\boxed{1}{4}$

3. $\frac{13}{6} = \boxed{12}{6} + \boxed{1}{6}$

$= 2 + \boxed{1}{6}$

$= 2\,\boxed{1}{6}$

Express each improper fraction as a mixed number.

Example

$\frac{9}{2} = \boxed{4\frac{1}{2}}$

$2\overline{)9}$ R 1 (4)

Use the division rule.
9 ÷ 2 = 4 R 1

4. $\frac{17}{4} = \boxed{4\frac{1}{4}}$

5. $\frac{29}{6} = \boxed{4\frac{5}{6}}$

Name: _____ Date: _____

Express each mixed number as an improper fraction.

Example

$2\frac{3}{5} = \boxed{2} + \frac{3}{5}$

$= \boxed{10}{5} + \frac{3}{5}$

$= \boxed{13}{5}$

11. $3\frac{5}{9} = 3 + \boxed{5}{9}$

$= \boxed{27}{9} + \boxed{5}{9}$

$= \boxed{32}{9}$

12. $2\frac{5}{8} = \boxed{2} + \frac{5}{8}$

$= \boxed{16}{8} + \frac{5}{8}$

$= \boxed{21}{8}$

13. $4\frac{2}{7} = 4 + \boxed{2}{7}$

$= \boxed{28}{7} + \boxed{2}{7}$

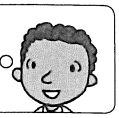
$= \boxed{30}{7}$

Express each mixed number as an improper fraction.

Example

$2\frac{1}{5} = \boxed{11}{5}$

Use the multiplication rule:
2 × 5 = 10
10 + 1 = 11
There are 11 fifths in $2\frac{1}{5}$.



14. $2\frac{3}{8} = \boxed{19}{8}$

15. $3\frac{3}{4} = \boxed{15}{4}$

16. $6\frac{2}{5} = \boxed{32}{5}$

17. $2\frac{4}{7} = \boxed{18}{7}$

Express each improper fraction as a whole number or a mixed number in simplest form. Show your work.

6. $\frac{9}{6} = \boxed{6}{6} + \boxed{3}{6}$

$= \boxed{1} + \boxed{3}{6}$

$= \boxed{1\frac{3}{6}}$

$= \boxed{1\frac{1}{2}}$

7. $\frac{12}{4} = \boxed{3}$

8. $\frac{21}{3} = \boxed{7}$

9. $\frac{14}{4} = \boxed{3\frac{2}{4}}$

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

10. $\frac{15}{6} = \boxed{2\frac{3}{6}}$

$= \boxed{2\frac{1}{2}}$

Express each mixed number as an improper fraction and each improper fraction as a mixed or whole number. Then solve the riddle.

18. $\frac{9}{7} = \boxed{1\frac{2}{7}}$ (b)

19. $\frac{15}{6} = \boxed{2\frac{1}{2}}$ (o)

20. $\frac{14}{7} = \boxed{2}$ (a)

21. $2\frac{2}{7} = \boxed{16}{7}$ (i)

22. $3\frac{5}{8} = \boxed{29}{8}$ (t)

23. $5\frac{3}{5} = \boxed{28}{5}$ (r)

Which two animals can look behind without turning their heads?
Write the letters which match the answers to find out.

P	a	r	r	o	t
	2	$\frac{28}{5}$	$\frac{28}{5}$	$2\frac{1}{2}$	$\frac{29}{8}$

and

R	a	b	b	i	t
$\frac{28}{5}$	2	$1\frac{2}{7}$	$1\frac{2}{7}$	$\frac{16}{7}$	$\frac{29}{8}$

Name: _____ Date: _____

Practice 6 Renaming Whole Numbers when Adding and Subtracting Fractions

Fill in the missing numerators.

Example

$3 = 2\frac{\boxed{4}}{4} = 1\frac{\boxed{8}}{4} = \frac{\boxed{12}}{4}$

1. $3 = 2\frac{\boxed{6}}{6}$

$= 1\frac{\boxed{12}}{6}$

$= \frac{\boxed{18}}{6}$

2. $2\frac{7}{9} = 1\frac{\boxed{16}}{9}$

$= \frac{\boxed{25}}{9}$

Add. Express each answer as a mixed number in simplest form.

3. $\frac{4}{9} + \frac{2}{3} = \frac{4}{9} + \frac{6}{9}$

$= \frac{10}{9}$

$= 1\frac{1}{9}$

4. $\frac{1}{6} + \frac{11}{12} = \frac{2}{12} + \frac{11}{12}$

$= \frac{13}{12}$

$= 1\frac{1}{12}$

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

$= \frac{2}{8} + \frac{3}{8} + \frac{6}{8}$

$= \frac{11}{8}$

$= 1\frac{3}{8}$

6. $\frac{4}{5} + \frac{7}{10} + \frac{9}{10}$

$= \frac{8}{10} + \frac{7}{10} + \frac{9}{10}$

$= \frac{24}{10}$

$= 2\frac{4}{10}$

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

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Subtract. Express each answer as a mixed number in simplest form.

Example

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

Method 1

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

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

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

Method 2

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

$1\frac{2}{3}$

7. $3 - \frac{5}{6} - \frac{1}{3}$

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

$= \frac{18}{6} - \frac{5}{6} - \frac{2}{6}$

$= \frac{11}{6}$

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

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

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

$= \frac{8}{4} - \frac{1}{4} - \frac{1}{4}$

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

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

9. $2 - \frac{2}{7} - \frac{3}{14}$

$= \frac{2}{1} - \frac{4}{14} - \frac{3}{14}$

$= \frac{28}{14} - \frac{4}{14} - \frac{3}{14}$

$= \frac{21}{14}$

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

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

$= \frac{3}{1} - \frac{7}{10} - \frac{6}{10}$

$= \frac{30}{10} - \frac{7}{10} - \frac{6}{10}$

$= \frac{17}{10}$

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

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Practice and Apply

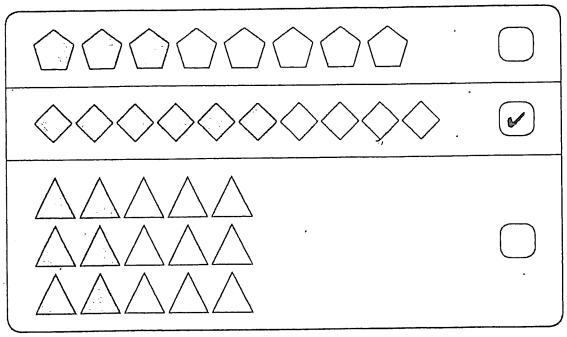
Workbook pages for Chapter 6, Lesson 6.7

Name: _____ Date: _____

Practice 7 Fraction of a Set

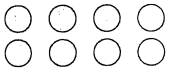
Check (✓) the box next to the group of shapes that show $\frac{3}{5}$ shaded.

1.



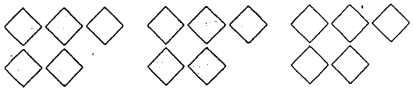
What fraction of each set of shapes is shaded? Express your answer in simplest form.

Example



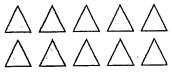
$\frac{3}{4}$

2.



$\frac{2}{3}$

3.



$\frac{2}{5}$

Workbook A p. 167

Use a model to help you answer each question.

Example

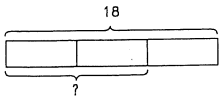
What is $\frac{2}{3}$ of 18?

3 units → 18

1 unit → 6

2 units → 12

So, $\frac{2}{3}$ of 18 = 12.



4. What is $\frac{3}{4}$ of 16?

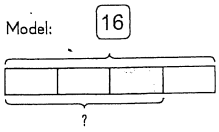
4 units → 16

1 unit → 4

3 units → 12

So, $\frac{3}{4}$ of 16 = 12.

Model:



5. What is $\frac{2}{5}$ of 25?

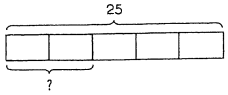
5 units → 25

1 unit → 5

2 units → 10

So, $\frac{2}{5}$ of 25 = 10.

Model:



Name: _____ Date: _____

Use a model to help you answer the question.

6. What is $\frac{5}{6}$ of 30?

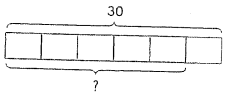
6 units → 30

1 unit → 5

5 units → 25

So, $\frac{5}{6}$ of 30 = 25.

Model :



Solve.

Example

$\frac{2}{3} \times 15$

$\frac{2}{3}$ of 15 is 10.

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

$\frac{3}{4}$ of 12 is 9.

8. $\frac{2}{5} \times 20$

$\frac{2}{5}$ of 20 is 8.

9. $\frac{6}{7} \times 42$

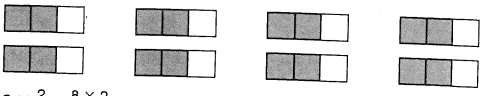
$\frac{6}{7}$ of 42 is 36.

Workbook A p. 169

Name: _____ Date: _____

Example

Keigo buys 8 bottles of milk. Each bottle contains $\frac{2}{3}$ pints milk. How much milk is there in the 8 bottles?



$8 \times \frac{2}{3} = \frac{8 \times 2}{3}$ (The unit fraction is $\frac{1}{3}$)

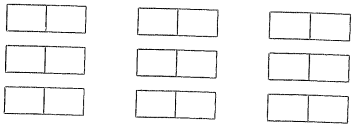
$= \frac{16}{3}$

$= 5\frac{1}{3}$

There is $5\frac{1}{3}$ pints of milk.

Solve. Draw models.

18. Georgina has 9 bags of shaved coconut. Each bag weighs $\frac{1}{2}$ pound. What is the total weight of the bags?



$9 \times \frac{1}{2} = \frac{9 \times 1}{2}$

$= \frac{9}{2}$

$= 4\frac{1}{2}$

The bags weigh $4\frac{1}{2}$ pounds in total.

Workbook A p. 171

Fill in the blanks to solve each problem.

Example

$\frac{1}{2}$ of 18 = $\frac{1}{2} \times 18$

$= \frac{1 \times 18}{2}$

$= \frac{18}{2}$

$= 9$

10. $\frac{2}{3}$ of 24 = $\frac{2}{3} \times \frac{24}{3}$

$= \frac{2 \times 24}{3}$

$= \frac{48}{3}$

$= 16$

11. $\frac{3}{4}$ of 32 = $\frac{3}{4} \times 32$

$= \frac{3 \times 32}{4}$

$= \frac{96}{4}$

$= 24$

Write each answer in the box. Then solve the riddle.

12. $\frac{1}{4} \times 28 =$ 7 I

13. $\frac{2}{3} \times 21 =$ 14 ..... o

14. $\frac{2}{5} \times 50 =$ 20 ..... s

15. $\frac{3}{4} \times 24 =$ 18 ..... a

16. $\frac{5}{6} \times 30 =$ 25 ..... a

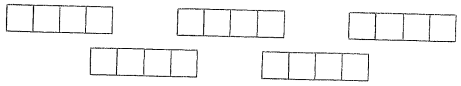
17. $\frac{6}{7} \times 35 =$ 30 ..... k

Which animals often sleep about 18 to 20 hours a day?
Write the letters that match the answers to find out.

K	o	a	l	a	s
30	14	25	7	18	20

Workbook A p. 170

19. Brandon buys 5 cans of paint. He uses $\frac{1}{4}$ gallon of each can of paint. How much paint did he use?



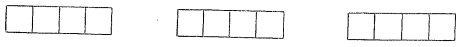
$5 \times \frac{1}{4} = \frac{5 \times 1}{4}$

$= \frac{5}{4}$

$= 1\frac{1}{4}$

Brandon used $1\frac{1}{4}$ gallons of paint.

20. A shop sold 3 truck loads of hay. Each truck had $\frac{2}{5}$ ton of hay. How much hay was in the 3 trucks?



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

$= \frac{6}{5}$

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

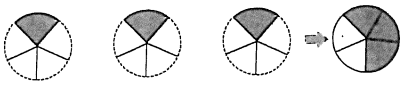
There was $1\frac{1}{5}$ tons of hay in the three trucks.

Workbook A p. 172

Name: _____ Date: _____

Example

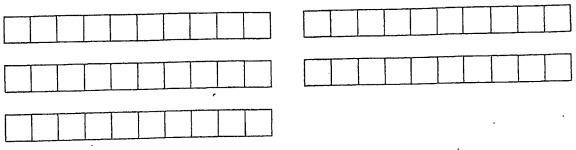
An egg omelet was cut into 5 equal parts. John and his two friends ate a piece each. What fraction of the omelet did they eat?



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

They ate $\frac{3}{5}$ of the cake.

21. A loaf of bread was cut into 10 slices. Jordon, Mandy, Alex, Alving, and Kris ate one piece each. What fraction of the loaf of bread did they eat?



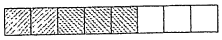
$5 \times \frac{1}{10} = \frac{5}{10}$

$= \frac{1}{2}$

They ate $\frac{1}{2}$ of the loaf of bread.

Workbook A p. 173

22. A strip of paper was cut into 8 pieces. Some of the pieces were painted. Two of the pieces were painted red and 3 of the pieces were painted green. What fraction of the paper was painted?



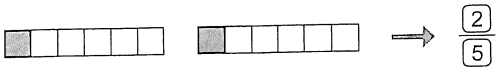
$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$

$\frac{5}{8}$ of the paper was painted.

Write an addition word problem for the model below.

Solve.

23.



Answers vary.

Workbook A p. 174

Name: _____ Date: _____

Practice 8 Real-World Problems: Fractions

Solve. Show your work.

Example

Ali bought three packages of dried fruit.

$\frac{1}{3}$ lb $\frac{1}{3}$ lb $\frac{1}{6}$ lb

What is the total weight of all three packages of dried fruit?

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

$\frac{1}{3} = \frac{2}{6}$ (×2)

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

The total weight of all three packages of dried fruit is $\frac{5}{6}$ pound.

Workbook A p. 175

Name: _____ Date: _____

3. Karen jogs $\frac{1}{2}$ mile. Selma jogs $\frac{1}{4}$ mile more than Karen.
Lena jogs $\frac{3}{4}$ mile more than Selma. How far does Lena jog?

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

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

$= 1\frac{2}{4} = 1\frac{1}{2}$

Lena jogs $1\frac{1}{2}$ miles.

4. Jeremy has 18 marbles. He loses 6 of them.
   a. What fraction of the marbles does he lose?
   b. What fraction of the marbles does he have left?

a. $\frac{6}{18} = \frac{1}{3}$

He loses $\frac{1}{3}$ of the marbles.

b. $18 - 6 = 12$

$\frac{12}{18} = \frac{2}{3}$

$\frac{2}{3}$ of the marbles are left.

or

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

$\frac{2}{3}$ of the marbles are left.

Workbook A p. 177

Solve. Show your work.

1. Jim had three waffles.
He ate $\frac{1}{6}$ of one waffle, and $\frac{2}{3}$ of another waffle.
How many waffles were left?

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

$= \frac{18}{6} - \frac{1}{6} - \frac{4}{6}$

$= \frac{13}{6} = 2\frac{1}{6}$

$2\frac{1}{6}$ waffles were left.

2. A grocery store has 5 pounds granola. One customer buys $\frac{2}{3}$ pound granola and another buys $\frac{5}{6}$ pound.
After these purchases, how much granola is left?

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

$= \frac{30}{6} - \frac{4}{6} - \frac{5}{6}$

$= \frac{21}{6}$

$= \frac{7}{2}$

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

$3\frac{1}{2}$ pounds of granola are left.

Workbook A p. 176

5. Mrs. Yan buys 4 red tulips and 5 yellow tulips.
   a. What fraction of the tulips are red?
   b. What fraction of the tulips are yellow?

a. $4 + 5 = 9$

$\frac{4}{9}$ of the tulips are red.

b. $1 - \frac{4}{9} = \frac{5}{9}$

$\frac{5}{9}$ of the tulips are yellow.

6. Charles owns 3 cats, 4 goldfish, and some parakeets. Altogether, he has 10 pets.
   a. What fraction of his pets are goldfish?
   b. What fraction of his pets are parakeets?

a. $\frac{4}{10} = \frac{2}{5}$

$\frac{2}{5}$ of his pets are goldfish.

b. $10 - 3 - 4 = 3$

$\frac{3}{10}$ of his pets are parakeets.

Workbook A p. 178

Name: _____ Date: _____

7. Rick had $20. He spent $10 on food, $6 on a movie ticket, and saved the rest.

a. How much money did he save?

b. What fraction of the total amount did he save?

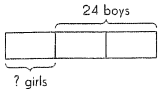
a. $20 - 10 - 6 = 4$

Rick saved $4.

b. $\frac{4}{20} = \frac{1}{5}$

Rick saved $\frac{1}{5}$ of the amount of his money.

8. There are 24 boys in a class, and $\frac{2}{3}$ of the students in the class are boys. How many students are girls?



2 units → 24

1 unit → $24 \div 2 = 12$

There are 12 girls.

Name: _____ Date: _____

11. There were 25 melons in a box at the grocery store. The store sold $\frac{3}{5}$ of the melons. How many melons were sold?

$\frac{3}{5} \times 25 = \frac{3 \times 25}{5}$

$= \frac{75}{5}$

$= 15$

The store sold 15 melons.

12. Ava read $\frac{1}{4}$ of a book on Monday, and $\frac{1}{5}$ on Tuesday. There are 80 pages in the book. How many pages did she read altogether on both days?

$\frac{1}{4} + \frac{1}{5} = \frac{5}{20} + \frac{4}{20}$

$= \frac{9}{20}$

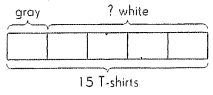
$\frac{9}{20} \times 80 = \frac{9 \times 80}{20}$

$= \frac{720}{20}$

$= 36$

She read 36 pages altogether on both days.

9. One morning, The Shirt Shop sold 15 T-shirts. Of the T-shirts sold, $\frac{1}{5}$ were gray. The rest were white. How many white T-shirts were sold?



$\frac{1}{5} \times 15 = \frac{15}{5} = 3$

3 gray T-shirts were sold.

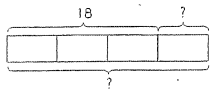
$15 - 3 = 12$

12 white T-shirts were sold.

10. A chef bought some green and red peppers. She bought 18 green peppers, which was $\frac{3}{4}$ the total number.

a. How many red peppers did she buy?

b. How many peppers did she buy altogether?



a. 3 units → 18

1 unit → 6

She bought 6 red peppers.

b. 4 units → 24

She bought 24 peppers altogether.

13. Yulia has $156. She spent $\frac{3}{4}$ of it on a bag and $\frac{1}{12}$ on a scarf. How much money did she have left?

$\frac{3}{4} + \frac{1}{12} = \frac{9}{12} + \frac{1}{12}$

$= \frac{10}{12}$

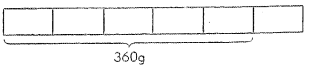
$= \frac{5}{6}$

$\frac{5}{6} \times \$156 = \$130$

$\$156 - \$130 = \$26$

She had $26 left.

14. A baker bought some butter. He used 360 grams to make some pastry. This was $\frac{5}{6}$ of the butter he had. How much butter did he buy at first?



5 units → 360 g

1 unit → $360 \div 5$

$= 72$ g

6 units → 72×6

$= 432$ g

He bought 432 grams of butter at first.

Name: _____ Date: _____

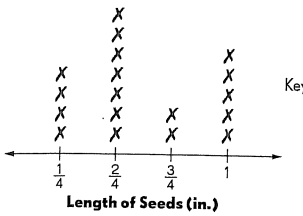
Practice 9 Line Plots with Fractions of a Unit

Example

Karina collected some seeds and measured their lengths in fractions of an inch. She recorded the lengths in a tally chart.

Length (in.)	Tally	Number of Seeds
$\frac{1}{4}$	////	4
$\frac{2}{4}$	//////	7
$\frac{3}{4}$	//	2
1	////	5

Show the data in a line plot.



Key: 1 ✗ represents 1 seed.

Length of Seeds (in.)

Use the data in your line plot. Answer the questions.

What is the total length of the seeds which are $\frac{1}{4}$ inch long?

$4 \times \frac{1}{4} = \frac{4}{4} = 1$

The total length is 1 inch.

What is the difference in length between the longest and shortest seeds?

$1 - \frac{1}{4} = \frac{1}{4} = \frac{1}{4}$

$= \frac{3}{4}$

The difference is $\frac{3}{4}$ inch.

Workbook A p. 183

Name: _____ Date: _____

Use the data in your line plot. Answer the questions.

14. How many bottles contain $1\frac{1}{2}$ pints of water? 3

15. What is the total amount of water in the bottles that contain $\frac{1}{2}$ pint? $2\frac{1}{2}$ pints

16. What is the difference between the bottle with the most amount of water and the bottle with the least amount of water? $1\frac{1}{2}$ pints

The tally chart shows the length of some ropes used to tie boxes.

Length of Rope (Yard)	Tally	Number of Pieces of Rope
$\frac{1}{6}$	//	2
$\frac{1}{3}$	////	4
$\frac{1}{2}$	/	1
$\frac{2}{3}$	////	5
1	//// /	6
2	///	3

17. Complete the table.

Workbook A p. 185

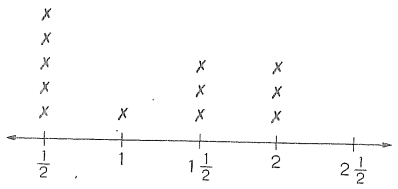
Solve.

The table shows the amount of water in some bottles.

Amount of Water (Pints)	Number of Bottles
$\frac{1}{2}$	5
1	1
$1\frac{1}{2}$	3
2	3

13. Draw a line plot to show the data.

Key: 1 ✗ represents 1 bottle.

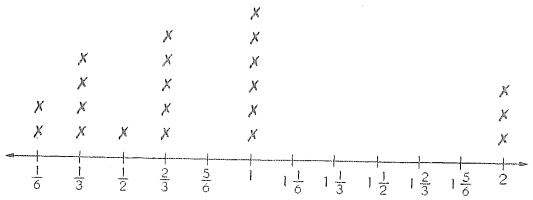


Amount of Water (pt)

Workbook A p. 184

18. Draw a line plot to show the data.

Key: 1 ✗ represents 1 piece of rope.



Length of Rope (yd)

Use the line plot to answer the questions.

19. How many pieces of ropes are there? 21

20. What is the length of the rope which has the most number of pieces of ropes? 1 yard

21. What is the difference in length between the longest piece and the shortest piece of rope? $1\frac{5}{6}$ yards

22. What is the total length of the pieces of ropes which are $\frac{1}{3}$ yard long? $1\frac{1}{3}$ yards

23. Rope sells for \$3 per yard. What is the total cost of all pieces that are $\frac{1}{3}$ yard long? \$4

Workbook A p. 186

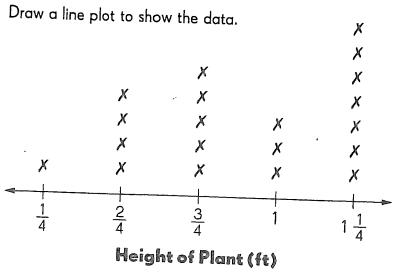
Name: _____ Date: _____

A class of 20 students each grew a plant in science class. The table shows the heights of the plants after two months.

Height of Plant (ft)	Number of Plants
$\frac{1}{4}$	1
$\frac{2}{4}$	4
$\frac{3}{4}$	5
1	3
$1\frac{1}{4}$	?

24. How many plants were $1\frac{1}{4}$ feet tall? 7

25. Draw a line plot to show the data.



26. What does each ✗ in your line plot represent? 1 plant

27. What is the difference between the tallest and the shortest plant? 1 foot

28. What is the total height of all the plants which are $\frac{2}{4}$ feet tall? 2 feet

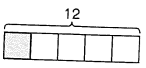
Workbook A p. 187

Math Journal

Is the model correct? If not, explain why it is wrong. Draw the correct model.

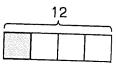
Example

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

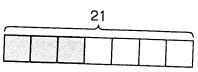


The model is wrong because it should have only four parts.

Correct model:

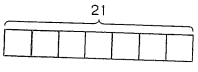


$\frac{2}{7}$ of 21



The model is wrong because only two parts should be shaded.

Correct model:



Workbook A p. 188

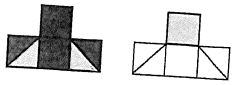
Notes

Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

1. Show $1\frac{1}{4}$ shaded, if 1 whole is made up of 4 squares.
Some of the shading has been done for you.



2. Is the answer of $21 \times \frac{2}{7}$ the same as that of $2 \times \frac{21}{7}$?
Show your work.

$21 \times \frac{2}{7} = \frac{21 \times 2}{7} = \frac{42}{7} = 6$

$2 \times \frac{21}{7} = \frac{2 \times 21}{7} = \frac{42}{7} = 6$

Yes, they are the same.

3. Write a fraction and a whole number that have the same product as the problem below.

$8 \times \frac{3}{4} = 6$

$\_\_\_\_ \times \_\_\_\_ = \_\_\_\_$

Answers vary.

Thinking skill: Identifying relationships

Workbook A p. 189

Put On Your Thinking Cap!

Problem Solving

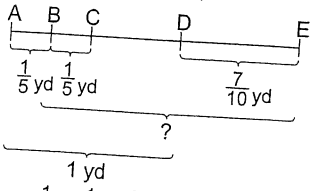
Caroline places five poles A, B, C, D, and E in order along a straight line. The distance between poles A and D is 1 yard. The distance between poles B and C is the same as the distance between poles A and B.

Poles A and B are $\frac{1}{5}$ yard apart.

Strategy: Use a diagram

The distance between D and E is $\frac{7}{10}$ yard.

How far apart are poles B and E?



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

Poles C and D are $\frac{3}{5}$ yard apart.

$\frac{1}{5} + \frac{3}{5} + \frac{7}{10} = \frac{15}{10}$

$= 1\frac{5}{10}$

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

Poles B and E are $1\frac{1}{2}$ yards apart.

Workbook A p. 190

Name: _____ Date: _____

Cumulative Review for Chapters 7 and 8

Concepts and Skills

Write each fraction or mixed number as a decimal. *(Lesson 7.1)*

1. $\frac{4}{10}$ = 0.4
2. $3\frac{3}{10}$ = 3.3
3. $\frac{18}{10}$ = 1.8

Write each decimal in tenths. *(Lesson 7.1)*

4. 0.6 = 6 tenths
5. 1.7 = 17 tenths
6. 9.5 = 95 tenths
7. 4.2 = 42 tenths

Write each of these as a decimal. *(Lesson 7.1)*

8. 3 ones and 4 tenths = 3.4
9. 8 ones and 1 tenth = 8.1
10. 77 tenths = 7.7
11. 19 tenths = 1.9

Fill in the blanks. *(Lesson 7.1)*

12. 22 tenths = 2 ones and 2 tenths
13. 3.2 = 3 ones and 2 tenths

Write the correct decimal in each box. *(Lesson 7.1)*

14. 0 | 3.0 — 0.1, 1.0, 1.3, 2.0, 2.8

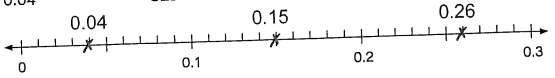
Name: _____ Date: _____

Fill in the blanks. *(Lesson 7.2)*

29. 16 hundredths = 1 tenth 6 hundredths
30. 0.45 = 4 tenths 5 hundredths

Mark X to show where each decimal is located on the number line. Label its value. *(Lesson 7.2)*

31. 0.04 32. 0.15 33. 0.26



Complete. *(Lesson 7.2)*

34. 5.2 = 5 ones and 2 tenths
35. 0.86 = 8 tenths 6 hundredths
36. 3.7 = 37 tenths
37. 0.93 = 93 hundredths

Write each sum as a decimal. *(Lesson 7.2)*

38. 7 + 0.6 + 0.02 = 7.62
39. 10 + 0.4 + 0.04 = 10.44
40. $5 + \frac{1}{10} + \frac{8}{100}$ = 5.18
41. $9 + \frac{3}{10} + \frac{7}{100}$ = 9.37

Complete the expanded form of each decimal. *(Lesson 7.1)*

15. 5.4 = 5 + 0.4
16. 7.1 = 7 + 0.1
17. 3.6 = 3 + 0.6
18. 10.2 = 10 + 0.2

Fill in the blanks. *(Lesson 7.1)*

19. In 22.3, the digit 3 is in the tenths place.
    Its value is 0.3.

Write each fraction or mixed number as a decimal. *(Lesson 7.2)*

20. $\frac{9}{100}$ = 0.09
21. $2\frac{26}{100}$ = 2.26
22. $\frac{105}{100}$ = 1.05

Write each decimal in hundredths. *(Lesson 7.2)*

23. 0.06 = 6 hundredths
24. 1.33 = 133 hundredths
25. 2.5 = 250 hundredths

Write each of these as a decimal. *(Lesson 7.2)*

26. 2 ones and 6 hundredths = 2.06
27. 5 tenths 5 hundredths = 0.55
28. 7 ones and 3 tenths 4 hundredths = 7.34

Fill in the blanks. *(Lesson 7.2)*

42. In 14.68, the digit 8 is in the hundredths place.
    Its value is 0.08.

Fill in the blanks. *(Lesson 7.2)*

43. $0.75 = 75 cents
44. $12.25 = 1,225 cents
45. $8.05 = 805 cents

Write each amount of money in decimal form. *(Lesson 7.2)*

46. 65 cents = $.65
47. 10 dollars and 90 cents = $10.90
48. 2 dollars and 5 cents = $2.05

Fill in the blanks. *(Lesson 7.3)*

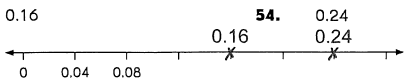
49. 0.1 more than 1.1 is 1.2.
50. 0.2 less than 2 is 1.8.
51. 0.01 less than 0.1 is 0.09.
52. 0.03 more than 0.07 is 0.10.

Name: _____ Date: _____

Mark ✗ to show where each decimal is located on the number line. Label its value. *(Lesson 7.3)*

53. 0.16

54. 0.24



Compare. Write > or <. *(Lesson 7.3)*

55. 4.1 (>) 0.41 **56.** 0.73 (>) 0.70

Circle the greatest decimal and underline the least. *(Lesson 7.3)*

57. 3.04 (3.4) 0.34

58. 0.6 0.61 (0.65)

Fill in the blank. *(Lesson 7.3)*

Answers vary.
Sample answer: 0.92

59. Write a decimal that is greater than 0.9 but less than 1.0. _____

Round each decimal to the nearest whole number. *(Lesson 7.4)*

60. 4.36 = 4 **61.** 7.81 = 8 **62.** 5.07 = 5

Round each decimal to the nearest tenth. *(Lesson 7.4)*

63. 2.39 = 2.4 **64.** 6.63 = 6.6 **65.** 4.00 = 4.0

Name: _____ Date: _____

Problem Solving

Solve. Show your work. *(Lesson 8.3)*

80. Lina thinks of a number. When she adds 9.65 to it, she gets 20.7. What number is Lina thinking of?

20.7 – 9.65 = 11.05

The number is 11.05.

81. Suri bought a skirt for $25.90 and a sweatshirt for $19.90. She paid the cashier $50. How much change did she receive?

Cost of skirt + cost of sweatshirt = total cost

$25.90 + $19.90 = $45.80

The skirt and sweatshirt cost $45.80.

$50 – total cost = amount of change

$50 – $45.80 = $4.20

Suri received $4.20 change.

Write each decimal as a fraction in simplest form. *(Lesson 7.5)*

66. 0.6 = $\frac{3}{5}$ **67.** 0.55 = $\frac{11}{20}$

Write each fraction or mixed number as a decimal. *(Lesson 7.5)*

68. $\frac{1}{5}$ = 0.2 **69.** $\frac{9}{20}$ = 0.45

70. $\frac{5}{2}$ = 2.5 **71.** $1\frac{3}{4}$ = 1.75

72. $4\frac{2}{5}$ = 4.4 **73.** $5\frac{1}{4}$ = 5.25

Find each sum or difference. *(Lessons 8.1 and 8.2)*

74.
$$\begin{array}{r} {\scriptstyle 1}\\ 6.74\\ +\ 2.17\\ \hline 8.91 \end{array}$$

75.
$$\begin{array}{r} {\scriptstyle 1}\\ 3.28\\ +\ 0.91\\ \hline 4.19 \end{array}$$

76.
$$\begin{array}{r} {\scriptstyle 1\ 1}\\ 5.76\\ +\ 4.26\\ \hline 10.02 \end{array}$$

77.
$$\begin{array}{r} {\scriptstyle 6\ 1}\\ \not{7}.05\\ -\ 1.33\\ \hline 5.72 \end{array}$$

78.
$$\begin{array}{r} {\scriptstyle 6\ 1}\\ 8.\not{5}2\\ -\ 3.43\\ \hline 5.29 \end{array}$$

79.
$$\begin{array}{r} {\scriptstyle 5\ 1\ 2\ 1}\\ \not{6}.\not{3}6\\ -\ 5.79\\ \hline 0.57 \end{array}$$

82. Jim bought a pen and a calculator. He paid the cashier $50 and received $20.45 change. If the pen cost $4.50, how much did the calculator cost?

$50 – amount of change = total cost

$50 – $20.45 = $29.55

The pen and calculator cost $29.55 altogether.

Total cost – cost of pen = cost of calculator

$29.55 – $4.50 = $25.05

The calculator cost $25.05.

83. A pole is painted white and red. The white part is 0.75 meter long and the red part is 1.45 meters longer. What is the length of the pole?

Length of white part + 1.45 m = length of red part

0.75 + 1.45 = 2.20

The length of the red part is 2.2 meters.

Length of red part + length of white part = length of pole

2.2 + 0.75 = 2.95

The length of the pole is 2.95 meters.

ractice and Apply

orkbook pages for Chapter 10, Lesson 10.1

Name: _____ Date: _____

Chapter 10

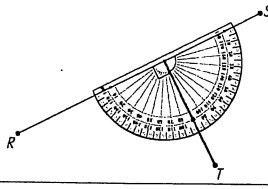
Perpendicular and Parallel Line Segments

Practice 1 Drawing Perpendicular Line Segments

Use a protractor to draw perpendicular line segments.

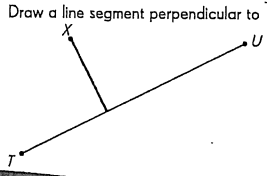
Example

Draw a line segment perpendicular to $\overline{RS}$ through point T.



1. Draw a line segment perpendicular to $\overline{PQ}$.

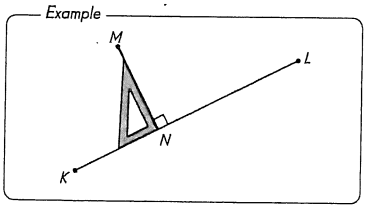
2. Draw a line segment perpendicular to $\overline{TU}$ through point X.



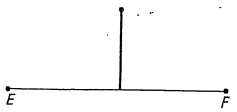
Workbook B p. 67

Use a drawing triangle to draw perpendicular line segments.

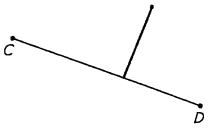
Example



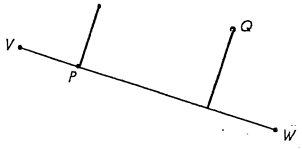
3. Draw a line segment perpendicular to $\overline{EF}$.



4. Draw a line segment perpendicular to $\overline{CD}$.



5. Draw a line segment perpendicular to $\overline{VW}$ at point P.
Then, draw another line segment perpendicular to $\overline{VW}$ through point Q.



Workbook pages for Chapter 10, Lesson 10.2

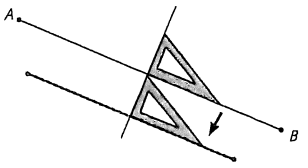
Name: _____ Date: _____

Practice 2 Drawing Parallel Line Segments

Use a drawing triangle and a straightedge to draw parallel line segments.

Example

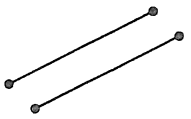
Draw a line segment parallel to $\overline{AB}$.



1. Draw a pair of parallel line segments.

Answers vary.

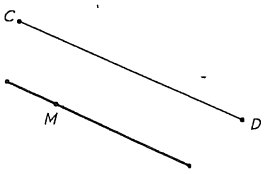
Sample answer:



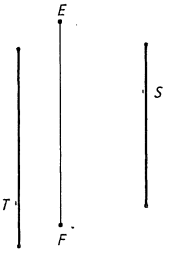
Workbook B p. 69

Use a drawing triangle and a straightedge to draw parallel line segments.

2. Draw a line segment parallel to $\overline{CD}$ through point M.



3. Draw a line segment parallel to $\overline{EF}$ through point T.
Then, draw another line segment parallel to $\overline{EF}$ through point S.



Workbook B p. 70

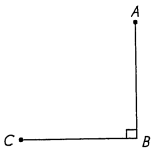
ractice and Apply
rkbook pages for Chapter 10, Lesson 10.3

Name: _____ Date: _____

Practice 3 Horizontal and Vertical Lines

Answer the questions.

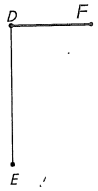
1. $\overline{AB}$ is perpendicular to $\overline{BC}$.



If $\overline{AB}$ is a vertical line segment, what do you know about $\overline{BC}$?

$\overline{BC}$ is a horizontal line segment.

2. **a.** $\overline{DE}$ is a vertical line segment. Draw a horizontal line segment through point D and label it $\overline{DF}$.



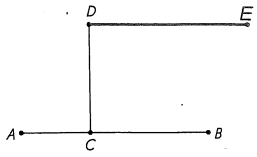
b. What do you know about the angle formed by $\overline{DE}$ and $\overline{DF}$?

The angle measures 90°.

Name: _____ Date: _____

Complete.

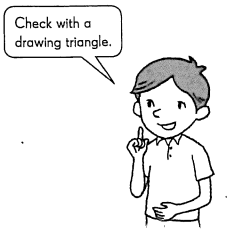
5. **a.** $\overline{AB}$ is a horizontal line segment and $\overline{CD}$ is a vertical line segment. At point D, draw a line segment parallel to $\overline{AB}$. Name it $\overline{DE}$.



Answers vary.

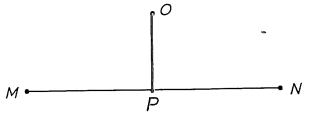
b. What do you know about $\overline{CD}$ and $\overline{DE}$?

$\overline{CD}$ is perpendicular to $\overline{DE}$.



Complete.

3. **a.** $\overline{MN}$ is a horizontal line segment. Draw a vertical line segment through point O to meet $\overline{MN}$ and label the point P.



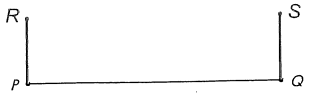
b. What do you know about $\overline{MN}$ and $\overline{OP}$?

$\overline{OP}$ is perpendicular to $\overline{MN}$.

c. How many right angles are formed by $\overline{MN}$ and $\overline{OP}$?

Two

4. **a.** $\overline{PQ}$ is a horizontal line segment.
Draw a vertical line segment at point P.
Name it $\overline{PR}$. Then draw a vertical line segment at point Q.
Name it $\overline{QS}$.

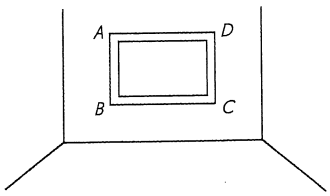


b. What do you know about $\overline{PR}$ and $\overline{QS}$? Check with a drawing triangle and a straightedge.

$\overline{PR}$ is parallel to $\overline{QS}$.

Complete.

6. $ABCD$ is a whiteboard fixed to the wall.



Name the vertical and horizontal line segments on the whiteboard.

Vertical line segments: $\overline{AB}$, $\overline{DC}$

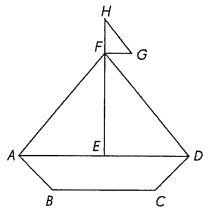
Horizontal line segments: $\overline{AD}$, $\overline{BC}$

Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice

In the figure, use a protractor, drawing triangle, and a straightedge to name three pairs of line segments that are



1. perpendicular. $\overline{AD}$ and $\overline{EF}$ / $\overline{HF}$ and $\overline{FG}$ / $\overline{HE}$ and $\overline{FG}$ / $\overline{HE}$ and $\overline{AD}$ / $\overline{FE}$ and $\overline{FG}$

2. parallel. $\overline{FG}$ and $\overline{ED}$ / $\overline{AD}$ and $\overline{BC}$ / $\overline{FG}$ and $\overline{AD}$ / $\overline{FG}$ and $\overline{BC}$ / $\overline{FG}$ and $\overline{AE}$ / $\overline{BC}$ and $\overline{ED}$ / $\overline{HG}$ and $\overline{FD}$

Thinking Skill: Classifying
Strategy: Guess and check

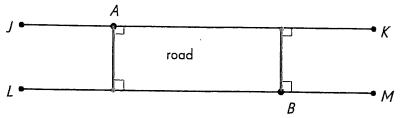
Workbook B p. 75

Name: _____ Date: _____

Put On Your Thinking Cap!

Problem Solving

The diagram shows a road with parallel curbs $\overline{JK}$ and $\overline{LM}$.



1. Danie is standing at point *A* and Alicia is standing at point *B*. They both want to cross the road. Use a drawing triangle to draw the shortest route each can take, and mark all the right angles like this ⌞. Measure the distance along each route.

2. What do you know about the distance between parallel line segments?

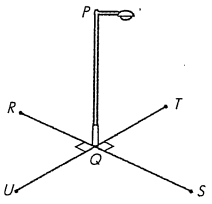
Parallel line segments are always the same distance apart.

Thinking Skill: Comparing
Strategy: Use a diagram

Workbook B p. 77

Solve.

PQ is a lamp post standing vertically on the ground.
$\overline{RS}$ and $\overline{UT}$ are horizontal line segments on the ground passing through point *Q*.
$\overline{QT}$ is perpendicular to $\overline{QS}$.



3. Identify two other pairs of line segments that are perpendicular.
Answers vary. Sample answer: $\overline{RQ} \perp \overline{UQ}$, $\overline{RQ} \perp \overline{QT}$

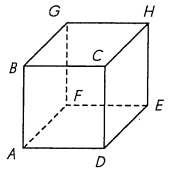
4. How many right angles are formed at point *Q*? Eight

Thinking Skill: Classifying
Strategy: Guess and check

Workbook B p. 76

Solve.

The cube is placed on a flat surface.



3. How many vertical line segments are there? 4

4. How many horizontal line segments are there? 8

5. How many right angles are there? 24

Thinking Skill: Identifying patterns and relationships
Strategy: Guess and check

Workbook B p. 78

Practice and Apply

Workbook pages for Chapter 11, Lesson 11.1

Name _____ Date _____

Chapter 11

Squares and Rectangles

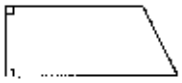
Practice 1 Squares and Rectangles

Fill in the blanks with *yes* or *no*.

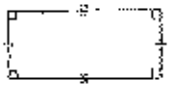
Example

Is this a square? Yes

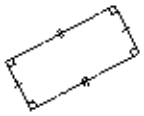
1. Is this a rectangle? No



2. Is this a square? No

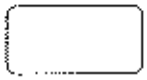


3. Is this a rectangle? Yes



4. Is this a square? No

5. Is this a rectangle? No



Lesson 11.1 Squares and Rectangles 79

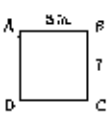
Workbook B p. 79

Name _____ Date _____

Find the lengths of the unknown sides.

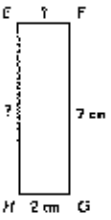
Example

ABCD is a square.



BC = 5 in.

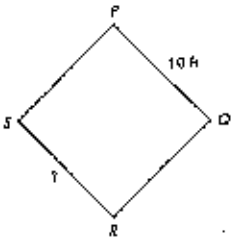
9. *EFGH* is a rectangle.



EF = 2 cm

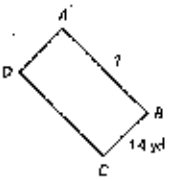
EH = 7 cm

10. *PQRS* is a square.



SR = 10 ft

11. *ABCD* is a rectangle. Its length is twice its width.



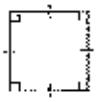
AB = 28 yd

Lesson 11.1 Squares and Rectangles 81

Workbook B p. 81

Fill in the blanks.

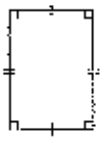
Example



Is this a square? Yes

Why or why not? All the sides are of equal length, and it has four right angles.

6.



Is this a rectangle? Yes

Why or why not? Its opposite sides are of equal length and parallel, and it has four right angles.

7.

Is this a rectangle? Yes

Why or why not? It is a special type of rectangle. Its opposite sides are of equal length, and it has four right angles.

8.

Is this a square? No

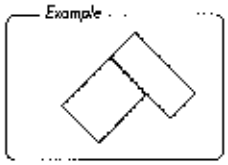
Why or why not? Not all its sides are of equal length.

80 Chapter 11 Squares and Rectangles

Workbook B p. 80

Draw a line segment to break up each figure into two rectangles.

Example



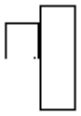
12.

13.

14.

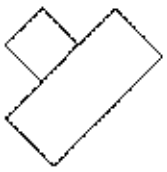
Draw a line segment to break up each figure into one square and one rectangle.

15.

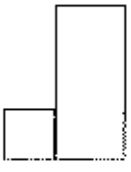


16.

17.



18.



82 Chapter 11 Squares and Rectangles

Workbook B p. 82

Practice and Apply

Workbook pages for Chapter 11, Lesson 11.2

Name _____ Date _____

Practice 2 Properties of Squares and Rectangles

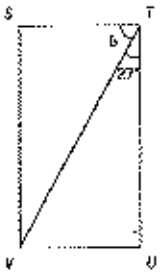
All the figures are rectangles. Find the measures of the unknown angles.

Example

Find the measure of $\angle o$.

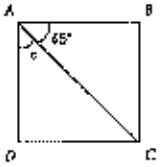
Measure of $\angle n = 90° - 35°$
$= 55°$

1. Find the measure of $\angle b$.



Measure of $\angle b = 90° - 27°$
$= 63°$

2. Find the measure of $\angle c$.

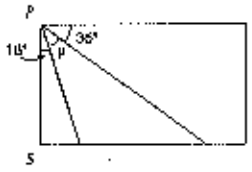


Measure of $\angle c = 90° - 45°$
$= 45°$

Workbook B, p. 83

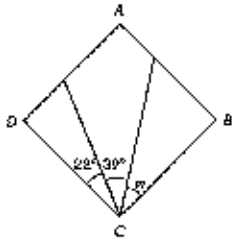
All the figures are rectangles. Find the measures of the unknown angles.

3. Find the measure of $\angle p$.



Measure of $\angle p = 90° - 36° - 18°$
$= 36°$

4. Find the measure of $\angle m$.

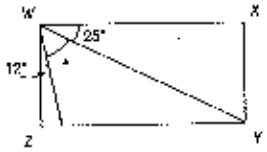


Measure of $\angle m = 90° - 22° - 39°$
$= 29°$

Name: _____ Date: _____

The figure is a rectangle. Find the measure of the unknown angle.

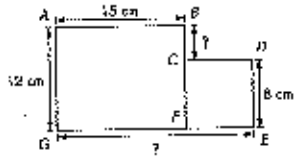
5. Find the measure of $\angle s$.



Measure of $\angle s = 90° - 25° - 12°$
$= 53°$

Find the lengths of the unknown sides.

6. The figure is made up of a rectangle and a square. Find BC and GE.



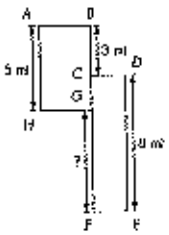
$BC = 12 - 8$
$= 4$ cm
$GE = 15 + 8$
$= 23$ cm

Workbook B p. 85

Name: _____ Date: _____

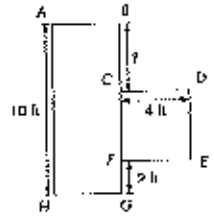
Find the lengths of the unknown sides.

9. The figure is made up of two rectangles. Find FG.



$CG = 5 - 3$
$= 2$ mi
$FG = 8 - 2$
$= 6$ mi

10. The figure is made up of a square and a rectangle. Find BC.

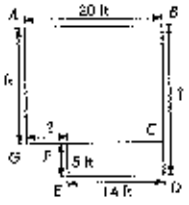


$BC = 10 - 4 - 2$
$= 4$ ft

Workbook B p. 87

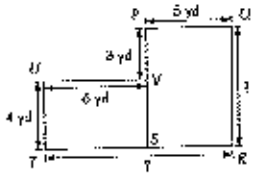
Find the lengths of the unknown sides.

7. The figure is made up of two rectangles. Find BD and FG.



$BD = 17 + 5$
$= 22$ ft
$FG = 20 - 14$
$= 6$ ft

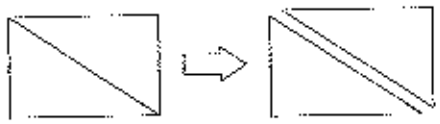
8. The figure is made up of two rectangles. Find QR and RT.



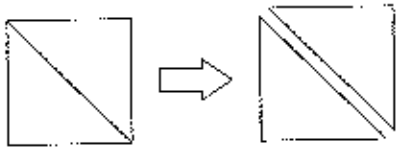
$QR = 3 + 4$
$= 7$ yd
$RT = 5 + 6$
$= 11$ yd

Workbook B p. 86

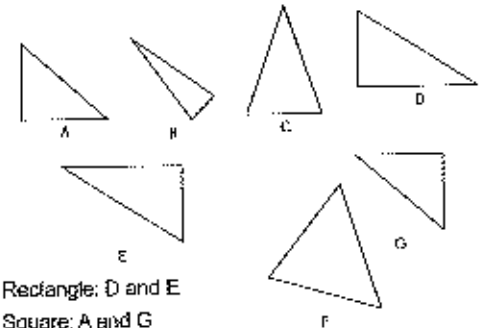
When we divide a rectangle into two, we get two right triangles.



In the same way, we can divide a square into two right triangles.



11. Which two of these right triangles make a rectangle and which two make a square?



Rectangle: D and E

Square: A and G

Workbook B p. 88

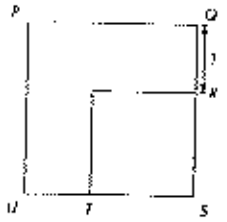
Practice and Apply

Workbook pages for Put On Your Thinking Cap!

Put On Your Thinking Cap!

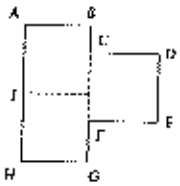
Challenging Practice

1. The figure is made up of two squares, one with 10-inch sides and the other with 6-inch sides. Find QR.



$QR =$ 4 in.

2. The figure is made up of three identical squares with 3-inch sides. Find the total length of $\overline{BC}$ and $\overline{FG}$.

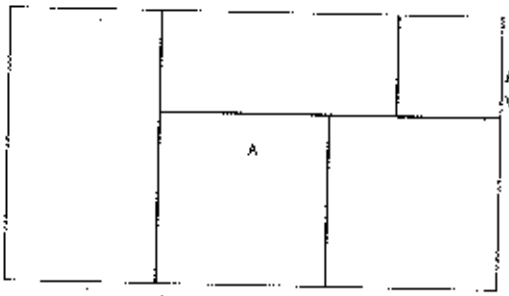


Thinking Skills: Spatial visualization, Deduction

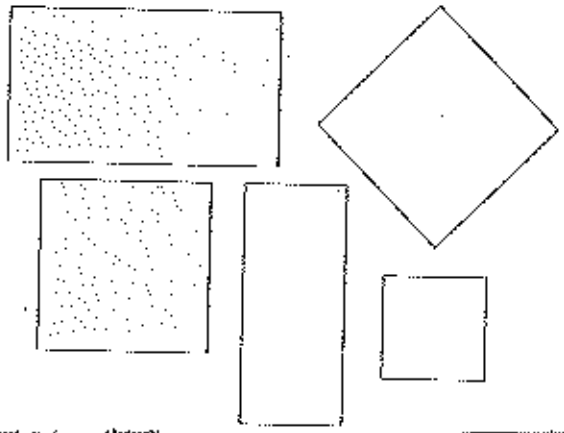
$BC + FG =$ 3 in.

Workbook B p. 90

3. Cut out the shaded rectangles and squares. Arrange them to fit inside rectangle A without overlapping. Then attach them with tape.



Answers vary.



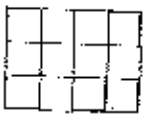
Workbook B p. 92

Name _____ Date _____

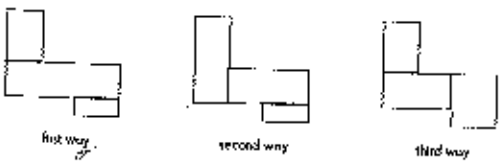
Put On Your Thinking Cap!

Problem Solving

1. Look at the figure. What is the least number of squares that must be added to make a rectangle? 5 squares



2. Draw line segments to divide the figure into three rectangles in three ways.



first way

second way

third way

Workbook B p. 91

Practice and Apply

Workbook pages for Chapter 13, Lesson 13.1

Name: _____ Date: _____

Chapter 13

Area and Perimeter

Practice 1 Area of a Rectangle

Find the area of each figure.

Example

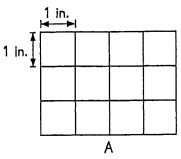
There are 3 rows of one-inch squares.

Each row has 4 one-inch squares.

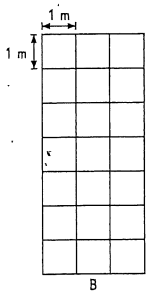
3 × 4 = 12

There are 12 one-inch squares covering rectangle A.

Area of rectangle A = 12 in.²



1.



There are 7 rows of one-meter squares.

Each row has 3 one-meter squares.

7 × 3 = 21

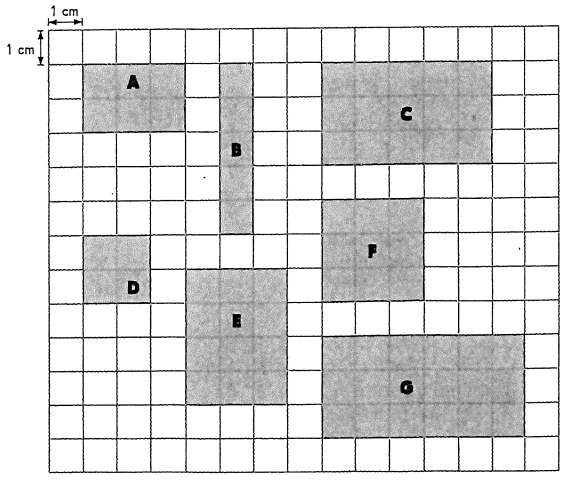
There are 21 one-meter squares covering rectangle B.

Area of rectangle B = 21 m²

Workbook B p. 133

Look at the rectangles in the grid. Write the length, width, and area of each rectangle in the grid. Give your answers in the correct units.

2.

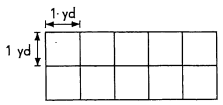


Rectangle	Length	Width	Area = Length × Width
A	3 cm	2 cm	6 cm²
B	5 cm	1 cm	5 cm²
C	5 cm	3 cm	15 cm²
D	2 cm	2 cm	4 cm²
E	4 cm	3 cm	12 cm²
F	3 cm	3 cm	9 cm²
G	6 cm	3 cm	18 cm²

Name: _____ Date: _____

Complete to find the area of each figure.

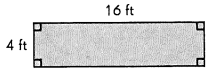
3.



Area = length × width
= 5 × 2
= 10 yd²

The area is 10 square yards.

4.

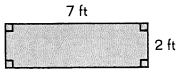


Area = 16 × 4
= 64 ft²

The area is 64 square feet.

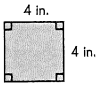
Find the perimeter and area of each rectangle or square.

Example



Perimeter = 18 ft
Area = 14 ft²

5.

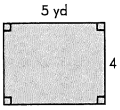


Perimeter = 16 in.
Area = 16 in.²

6.

Perimeter = 16 ft
Area = 12 ft²

7.



Perimeter = 18 yd
Area = 20 yd²

Name: _____ Date: _____

Solve. Show your work.

10. Yolanda has a piece of rectangular fabric measuring 30 centimeters by 9 centimeters. She uses half of the material to make a puppet. What is the area of the leftover fabric?

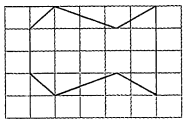
Area of fabric = length × width
= 30 × 9
= 270 cm²

Area of leftover fabric = 270 ÷ 2
= 135 cm²

The area of the leftover fabric is 135 square centimeters.

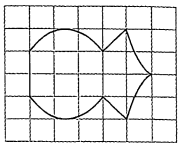
Estimate the area of each figure in square units.

Example



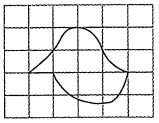
Estimated area = 14–15 square units

11.



Estimated area = 14–16 square units

12.



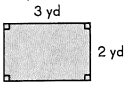
Estimated area = 7–8 square units.

Solve. Show your work.

Example

Ashley has a rug that measures 3 yards by 2 yards on her bedroom floor.
What area of her bedroom floor is covered by the rug?

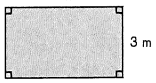
Area = length × width
= 3 × 2
= 6 yd²



The area of her bedroom floor covered by the rug is 6 square yards.

8. Paula wants to paint one of the walls in her room blue. The wall measures 5 meters by 3 meters.
What is the area of the wall she has to paint?

Area = length × width
= 5 × 3
= 15 m²



She has to paint 15 square meters of the wall.

9. The area of a nature reserve is 100 square miles. Oak trees were planted on a square plot of land in the nature reserve with sides that measure 8 miles each.
What area of the nature reserve is not covered by oak trees?

Area covered by oak trees = length of side × length of side
= 8 × 8
= 64 mi²

Area not covered by oak trees = 100 – 64
= 36 mi²

36 square miles of the nature reserve is not covered by oak trees.

Math Journal

Look at John's answers for the area and perimeter of the figures.

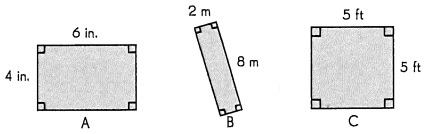


Figure	Length	Width	Area	Perimeter
A	6 in.	4 in.	(24 in.)	(10 in.)
B	8 m	2 m	16 m²	(20 cm)
C	5 ft	5 ft	(10 ft²)	20 ft

John's mistakes are circled.

Explain why these answers are wrong. Write the correct answers.

Example

Area of figure A:
The unit for the area of figure A should be 'in.²'.

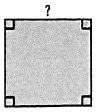
1. Perimeter of figure A: The perimeter of figure A should include all its lengths and widths. The perimeter of figure A is 20 inches.
2. Perimeter of figure B: The unit for the perimeter of figure B should be 'm'. The perimeter of figure B is 20 meters.
3. Area of figure C: The area of figure C should be length of side × length of side. The area of figure C is 25 square feet.

Name: _____ Date: _____

Solve. Show your work.

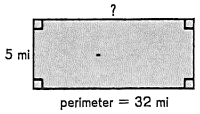
3. A square field has a perimeter of 44 meters. Find the length of one side of the field.

Length of one side = perimeter ÷ 4
= 44 ÷ 4
= 11 m
The length of one side of the field is 11 meters.



4. The perimeter of a rectangular town is 32 miles. Its width is 5 miles. Find the length.

Length + width = perimeter ÷ 2
= 32 ÷ 2
= 16 mi
5 + length = 16 mi
Length = 11 mi
The length of the town is 11 miles.



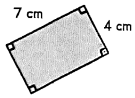
Workbook B p. 141

Name: _____ Date: _____

Practice 2 Rectangles and Squares

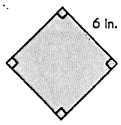
Find the perimeter of each figure.

Example



Perimeter of rectangle
= 7 + 4 + 7 + 4
= 22 cm
The perimeter of the rectangle is 22 centimeters.

1.



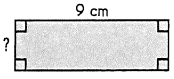
Perimeter of square = 4 × 6
= 24 in.
The perimeter of the square is 24 inches.

Workbook B p. 139

Solve. Show your work.

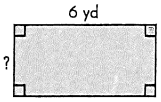
5. The perimeter of a rectangle is 24 centimeters. Its length is 9 centimeters. Find the width.

Length + width = perimeter ÷ 2
= 24 ÷ 2
= 12 cm
9 + width = 12 cm
-width = 3 cm
The width of the rectangle is 3 centimeters.



6. The perimeter of a rectangular garden is 18 yards. Its length is 6 yards. Find its width.

Length + width = perimeter ÷ 2
= 18 ÷ 2
= 9 yd
6 + width = 9 yd
Width = 3 yd
The width of the garden is 3 yards.



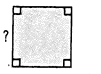
Workbook B p. 142

Solve. Show your work.

Example

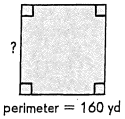
The perimeter of a square flower garden is 20 feet. Find the length of one side of the flower garden.

Length of one side = perimeter ÷ 4
= 20 ÷ 4
= 5 ft
The length of one side of the flower garden is 5 feet.



2. The perimeter of a square building is 160 yards. Find the length of one side of the building.

Length of one side = perimeter ÷ 4
= 160 ÷ 4
= 40 yd
The length of one side of the building is 40 yards.



Workbook B p. 140

Practice and Apply

Workbook pages for Chapter 13, Lesson 13.2

Name: _____ Date: _____

Practice 3 Rectangles and Squares

Find the area of each figure.

Example

Area of the rectangle = 12 × 6

= 72 ft²

The area of the rectangle is 72 square feet.

1.

Area of the square = 9 × 9

= 81 cm²

The area of the square is 81 square centimeters.

Name: _____ Date: _____

Solve. Show your work.

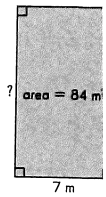
3. The area of a rectangular carpet is 84 square meters. Its width is 7 meters.

a. Find the length.

Length = area ÷ width

= 84 ÷ 7 = 12 m

The length of the carpet is 12 meters.



b. Find the perimeter of the carpet.

Perimeter = length + width + length + width

= 12 + 7 + 12 + 7 = 38 m

The perimeter of the carpet is 38 meters.

4. The area of a square is 64 square inches.
Find the length of one side of the square.
(Hint: What number multiplied by itself is equal to 64?)

Area = length of side × length of side

64 = 8 × 8

The length of one side of the square is 8 inches.

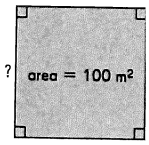
5. The area of a square garden is 100 square meters.

a. Find the length of each side of the garden.

Area = length of side × length of side

100 = 10 × 10

The length of each side of the garden is 10 meters.



b. Find the perimeter of the garden.

4 × length of side = perimeter

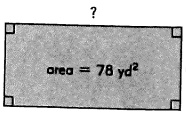
4 × 10 = 40

The perimeter of the garden is 40 meters.

Solve. Show your work.

Example

The area of a rectangular hall is 78 square yards. Its width is 6 yards.
Find the length.



Length × width = area

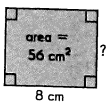
Length × 6 = 78 yd²

Length = 78 ÷ 6

= 13 yd

The length of the hall is 13 yards.

2. A rectangle has an area of 56 square centimeters.
Its length is 8 centimeters. Find the width.



Length × width = area

8 × width = 56 cm²

Width = 56 ÷ 8

= 7 cm

The width of the rectangle is 7 centimeters.

Solve. Show your work.

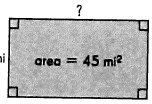
6. The area of a rectangular recreation area is 45 square miles.
Its width is 5 miles.

a. Find the length.

Area ÷ width = length

45 ÷ 5 = 9

The length of the recreation area is 9 miles.



b. Find the perimeter.

Length + width + length + width = perimeter

5 + 9 + 5 + 9 = 28

The perimeter of the recreation area is 28 miles.

7. The perimeter of a rectangular poster is 156 inches.
Its width is 36 inches.

a. Find the length.

Length + width + length + width = perimeter

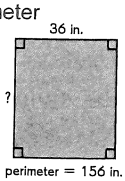
Length + width = 156 ÷ 2

= 78 in.

Length + 36 = 78 in.

Length = 42 in.

The length of the poster is 42 inches.



b. Find the area.

Area = length × width

= 42 × 36

= 1,512 in.²

The area of the poster is 1,512 square inches.

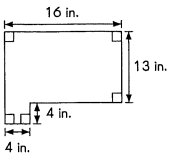
Workbook pages for Chapter 13, Lesson 13.3

Name: _____ Date: _____

Practice 4 Composite Figures

Find the lengths of the unknown sides of each figure. Then find the perimeter of each figure.

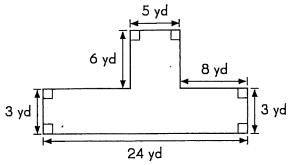
Example



Length of first unknown side = 16 − 4 = 12 in.
Length of second unknown side = 13 + 4 = 17 in.
Perimeter of figure = 16 + 13 + 12 + 4 + 4 + 17 = 66 in.

Perimeter = 66 in.

1.



Length of first unknown side = 6 yd
Length of second unknown side = 24 − 8 − 5
= 11 yd
Perimeter of figure = 11 + 6 + 5 + 6 + 8 + 3 + 24 + 3
= 66 yd

Perimeter = 66 yd

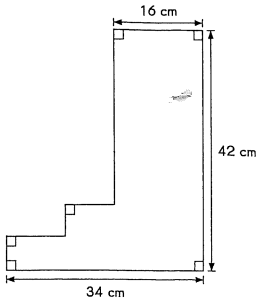
Workbook B p. 147

Name: _____ Date: _____

Solve. Show your work.

4. Find the perimeter of the figure.

34 + 34 + 42 + 42
= 152 cm²

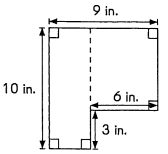


Perimeter = 152 cm

Find the area of each composite figure. Show your work.

Example

Break up the figure into two rectangles as shown.
Then find the area of the whole figure.



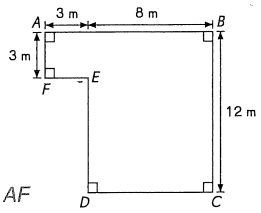
Area of rectangle 1 = length × width
= 10 × 3
= 30 in.²
Area of rectangle 2 = length × width
= 7 × 6
= 42 in.²
Total area = area of rectangle 1 + area of rectangle 2
= 30 + 42
= 72 in.²

Area = 72 in.²

Workbook B p. 149

Solve. Show your work.

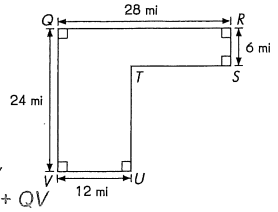
2. Tom wants to fence in the piece of land shown in the diagram. Find the perimeter of the piece of land to find the length of fencing material he needs.



AB = 3 + 8 = 11 m
CD = 8 m
DE = *BC* − *AF*
= 12 − 3
= 9 m
EF = 3 m
Perimeter of figure *ABCDEF*
= *AB* + *BC* + *CD* + *DE* + *EF* + *AF*
= 11 + 12 + 8 + 9 + 3 + 3
= 46 m

Perimeter = 46 m

3. Find the perimeter of this figure.



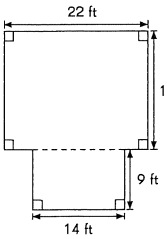
ST = *QR* − *UV*
= 28 − 12
= 16 mi
TU = *QV* − *RS*
= 24 − 6
= 18 mi
Perimeter of figure *QRSTUV*
= *QR* + *RS* + *ST* + *TU* + *UV* + *QV*
= 28 + 6 + 16 + 18 + 12 + 24
= 104 mi

Perimeter = 104 mi

Workbook B p. 148

Find the area of each composite figure. Show your work.

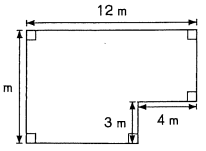
5.



Area of rectangle 1 = length × width
= 22 × 18
= 396 ft²
Area of rectangle 2 = length × width
= 14 × 9
= 126 ft²
Area of composite figure
= area of rectangle 1
+ area of rectangle 2
= 396 + 126
= 522 ft²

Area = 522 ft²

6.



Area of rectangle 1 = length × width
= 12 × 5
= 60 m²
Area of rectangle 2 = length × width
= 8 × 3
= 24 m²
Area of composite figure
= area of rectangle 1
+ area of rectangle 2
= 60 + 24
= 84 m²

Area = 84 m²

More than 2 rectangles are possible.

Workbook B p. 150

Practice and Apply

Workbook pages for Chapter 13, Lesson 13.4

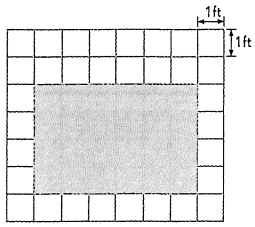
Name: _____ Date: _____

Practice 5 Using Formulas for Area and Perimeter

Solve. Show your work.

Example

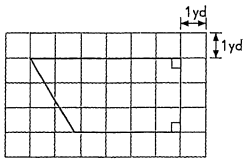
The floor of a patio measuring 8 feet by 7 feet is tiled with 1-foot square tiles. The shaded area in the figure is tiled in black, and the unshaded area is tiled in white. What is the area tiled in white?



Area of patio = 8 × 7
= 56 ft²
Shaded area = 6 × 4
= 24 ft²
Area of patio − shaded area
= 56 − 24
= 32 ft²
The area tiled in white is 32 square feet.

1. The floor of Mr. Jones' living room is in the shape shown below.

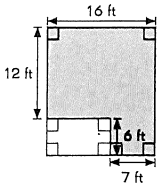
a. Estimate, in square yards, the area of his living room. 15 yd²



b. Mr. Jones wants to carpet his living room. If a roll of carpet is 3 yards wide, what is the smallest length of carpet Mr. Jones should buy?
12 yd

Solve. Show your work.

2. The figure shows a small rectangle and a large rectangle. Find the area of the shaded part of the figure.



Area of large rectangle = 16 × 18
= 288 ft²

Area of small rectangle = 6 × 9
= 54 ft²

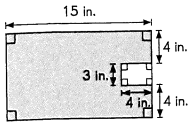
Area of shaded part = area of large rectangle − area of small rectangle
= 288 − 54
= 234 ft²

The area of the shaded part is 234 square feet.

Name: _____ Date: _____

Solve. Show your work.

3. The figure shows a small rectangle and a large rectangle. Find the area of the shaded part of the figure.



Area of large rectangle = 15 × 11
= 165 in.²

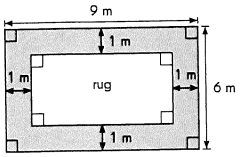
Area of small rectangle = 3 × 4
= 12 in.²

Area of shaded part = 165 − 12
= 153 in.²

The area of the shaded part is 153 square inches.

Example

A rug is centered on a rectangular floor as shown in the diagram. Find the area of the rug.



Length of rug = 9 − 1 − 1
= 7 m

Width of rug = 6 − 1 − 1
= 4 m

Area of rug = 7 × 4
= 28 m²

The area of the rug is 28 square meters.

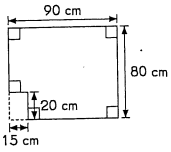
Workbook B p. 153

Name: _____ Date: _____

Solve. Show your work.

6. Renee has a piece of rectangular cardboard measuring 90 centimeters by 80 centimeters. She cuts out a small rectangular piece measuring 15 centimeters by 20 centimeters.

a. Find the area of the remaining piece of cardboard.



Area of cardboard = length × width
= 90 × 80
= 7,200 cm²

Area of small cutout = length × width
Area of cutout = 15 × 20
= 300 cm²

Area of remaining piece = area of cardboard − area of cutout
= 7,200 − 300
= 6,900 cm²

The area of the remaining piece of cardboard is 6,900 square centimeters.

b. Find the perimeter of the remaining piece of cardboard.

Perimeter of remaining piece = 90 + 80 + 75 + 20 + 15 + 60
= 340 cm

The perimeter of the remaining piece of cardboard is 340 centimeters.

c. Compare the perimeter of the remaining piece of cardboard with that of the original piece of cardboard. Which one is greater?

They are the same length.

Workbook B p. 155

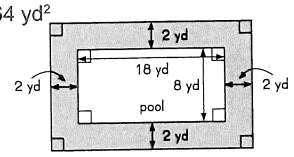
Solve. Show your work.

4. A rectangular pool is surrounded by a 2-yard-wide deck as shown in the diagram. Find the area of the deck.

Area of large rectangle = 22 × 12
= 264 yd²

Area of pool = 18 × 8
= 144 yd²

Area of deck = 264 − 144
= 120 yd²



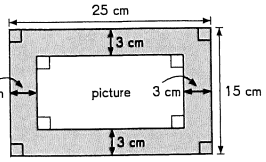
The area of the deck is 120 square yards.

5. A rectangular picture frame measures 25 centimeters by 15 centimeters. It has a wooden border 3 centimeters wide. To fit the picture frame, how large should a picture be?

Length of picture = 25 − 3 − 3
= 19 cm

Width of picture = 15 − 3 − 3
= 9 cm

Area of picture = 19 × 9
= 171 cm²

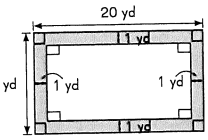


The picture should be 171 square centimeters.

Workbook B p. 154

Solve. Show your work.

7. Melanie makes a path 1 yard wide around her rectangular patch of land as shown in the diagram. Find the perimeter and area of the patch of land.



Length of patch of land = 20 − 1 − 1
= 18 yd

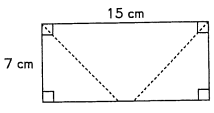
Width of patch of land = 12 − 1 − 1
= 10 yd

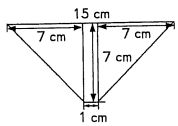
Perimeter of patch of land = 18 + 18 + 10 + 10
= 56 yd

Area of patch of land = 18 × 10
= 180 yd²

The perimeter of the patch of land is 56 yards.
The area of the patch of land is 180 square yards.

8. A rectangular piece of paper measuring 15 centimeters by 7 centimeters is folded along the dotted lines to form the figure shown.





Find the area of the figure formed.

7 × 7 = 49

1 × 7 = 7

Area of figure = 49 + 7
= 56 cm²

The area of the figure formed is 56 square centimeters.

Workbook B p. 156

Practice and Apply

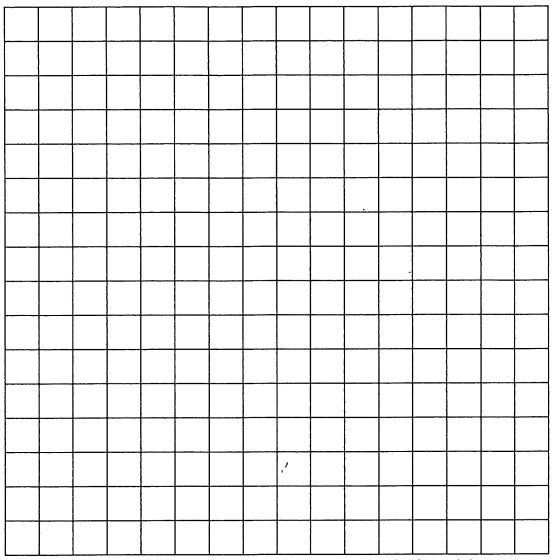
Workbook pages for Put On Your Thinking Cap!

Name: _____ Date: _____

Put On Your Thinking Cap!

Challenging Practice See Additional Answers.

1. Using the gridlines, draw as many different rectangles as you can that have an area of 12 square centimeters. Do the same for rectangles with an area of 9 square centimeters. How many rectangles can you draw for each area?



Thinking Skill: Identifying patterns and relationships
Strategy: Act it out

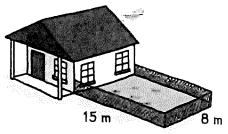
Name: _____ Date: _____

Solve. Show your work.

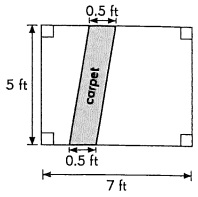
4. A rectangular garden measuring 15 meters by 8 meters is bordered by a house on one side as shown. How much fencing material is needed for the garden?

Length of fencing material needed = 15 + 8 + 15
= 38 m

38 meters of fencing material is needed for the garden.



5. Mrs. Evan covered the rectangular floor of her living room with a parallelogram-shaped carpet as shown. The floor measures 5 feet by 7 feet. How much of the floor is covered with carpet?



Area of living room = 5 × 7
= 35 ft²

The uncarpeted area forms an area of length 7 – 0.5 = 6.5 ft, and width 5 ft.

Area not covered with carpet
= 5 × 6.5
= 32.5 ft²

Carpeted area = area of living room – uncarpeted area
= 35 – 32.5
= 2.5 ft²

The area of the floor covered with carpet is 2.5 square feet.

Solve. Show your work.

2. The length of a painting is 3 times its width. Its perimeter is 64 inches. Find the length.

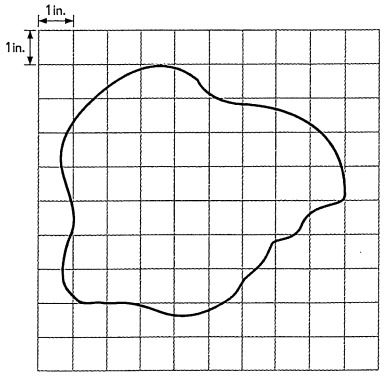
8 units → 64 in.
1 unit → 64 ÷ 8
= 8 in.
Width = 8 in.
Length of the painting = 3 × 8
= 24 in.
The length of the painting is 24 inches.

3. The length of a dog run is twice its width. Its area is 50 square yards. Find the length and width of the dog run.

50 ÷ 2 = 25
5 × 5 = 25
Width = 5 yd
Length = 2 × 5
= 10 yd
The width of the dog run is 5 yards.
The length of the dog run is 10 yards.

Estimate the area.

6. Peter wanted to make a collage of a park.
How much paper would he need to make this pond?



Number of ■ = 31

Number of ◪ = 3–4

Number of ▪ = 9–10

Estimated area = 41–42 in.²

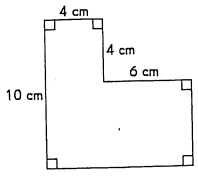
Name: _____ Date: _____

Put On Your Thinking Cap!

Problem Solving

1. Shawn has a piece of cardboard as shown in the diagram.
He wants to cut out as many squares as possible from the cardboard.
How many squares can he cut if each side of a square is

Strategy: Use a diagram



a. 2 centimeters long? 19

b. 3 centimeters long? 7

c. 4 centimeters long? 3

2. Figure A shows a piece of paper folded to form a square with 8-inch sides as shown in the diagram. Figure B shows one of the flaps opened.
Find the area of figure B.

Area of figure A = 8 × 8
= 64 in.^{2}

Area of one triangle = 64 ÷ 4
= 16 in.^{2}

Area of figure B = area of 5 triangles
= 5 × 16
= 80 in.^{2}

The area of figure B is 80 square inches.

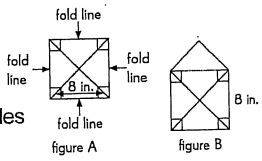
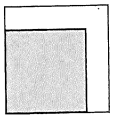


figure A figure B

Solve. Show your work.

3. The figure shows two squares. The area of the unshaded part of the figure is 9 square feet. If the sides of both the squares are whole numbers, find the perimeter of the unshaded part.



	1st Guess	2nd Guess	3rd Guess	4th Guess
Area of large square	2 × 2 = 4 ft^2	3 × 3 = 9 ft^2	4 × 4 = 16 ft^2	5 × 5 = 25 ft^2
Area of small square	1 × 1 = 1 ft^2	1 × 1 = 1 ft^2	2 × 2 = 4 ft^2	4 × 4 = 16 ft^2
Area of unshaded part	3 ft^2	8 ft^2	12 ft^2	9 ft^2

From the 4th guess, side of big square = 5 ft
side of small square = 4 ft.

Perimeter of the unshaded part
= 5 + 5 + 1 + 4 + 4 + 1
= 20 ft
The perimeter of the unshaded part is 20 feet.