SHADY SIDE
ACADEMY

COUNTRY DAY SCHOOL
IN FOX CHAPEL
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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. The completion of this packet is not required, but it may provide you with a resource to practice skills that were covered in fourth grade. These concepts include:

- 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, your child may also benefit from using these resources.

IXL.com/math- Students can gain fluency and confidence in math. IXL helps students master essential skills at their own pace through fun and interactive questions, built in support, and motivating awards.

splashlearn.com- Students practice math skills through a personalized learning path and interactive games.

I hope you have a wonderful summer!

Sincerely,
Raquel Kramer
Fifth Grade Teacher

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. $13{,}901 = 10{,}000 + \underline{\hspace{2cm}} + 900 + 1$

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. $\begin{array}{r} 5\ 2\ 2 \\ -\ 3\ 8\ 9 \\ \hline \end{array}$

23. $\begin{array}{r} 4\ 5\ 6 \\ +\ 7\ 9\ 0 \\ \hline \end{array}$

24. $\begin{array}{r} 4,5\ 6\ 2 \\ -\ \ \ 6\ 7\ 3 \\ \hline \end{array}$

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

25.
$$\begin{array}{r} 1,376 \\ +\ 3,428 \\ \hline \end{array}$$

26.
$$\begin{array}{r} 7,496 \\ -\ \ \ 829 \\ \hline \end{array}$$

27.
$$\begin{array}{r} 432 \\ +\ 759 \\ \hline \end{array}$$

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

28.
$$\begin{array}{r} 383 \\ \times\ \ \ \ 2 \\ \hline \end{array}$$

29.
$$\begin{array}{r} 241 \\ \times\ \ \ \ 4 \\ \hline \end{array}$$

30.
$$\begin{array}{r} 752 \\ \times\ \ \ \ 5 \\ \hline \end{array}$$

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

31.
$$\begin{array}{r} 308 \\ \times\ \ \ \ 3 \\ \hline \end{array}$$

32.
$$\begin{array}{r} 126 \\ \times\ \ \ \ 5 \\ \hline \end{array}$$

33.
$$\begin{array}{r} 415 \\ \times\ \ \ \ 4 \\ \hline \end{array}$$

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

34. $4\overline{)9\ 2}$

35. $3\overline{)7\ 8}$

36. $4\overline{)6\ 8}$

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 _____ .

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. $39 \times 8 =$

$$\begin{array}{r} 3\,9 \\ \times \quad 8 \\ \hline \end{array}$$

54. $56 \times 7 =$

$$\begin{array}{r} 5\,6 \\ \times \quad 7 \\ \hline \end{array}$$

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?

Cumulative Review

for Chapters 7 and 8

Concepts and Skills

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

1. $\dfrac{4}{10} =$ _____

2. $3\dfrac{3}{10} =$ _____

3. $\dfrac{18}{10} =$ _____

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. $\dfrac{9}{100} =$ _____

21. $2\dfrac{26}{100} =$ _____

22. $\dfrac{105}{100} =$ _____

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 = _____

Fill in the blanks. *(Lesson 7.2)*

29.   16 hundredths = 1 tenth _____ hundredths

30.   0.45 = 4 tenths _____ 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 = _____ 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. $5 + \dfrac{1}{10} + \dfrac{8}{100} =$ _____

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

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 _____.

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

53.   0.16   **54.**   0.24

0   0.04   0.08

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. $\dfrac{1}{5} =$ _____

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

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

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

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

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

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

74.
```
    6 . 7 4
+   2 . 1 7
───────────
```

75.
```
    3 . 2 8
+   0 . 9 1
───────────
```

76.
```
    5 . 7 6
+   4 . 2 6
───────────
```

77.
```
    7 . 0 5
−   1 . 3 3
───────────
```

78.
```
    8 . 7 2
−   3 . 4 3
───────────
```

79.
```
    6 . 3 6
−   5 . 7 9
───────────
```

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?

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.

•S

R•

T•

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

P •————————————————————• Q

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

X

•U

T•

Use a drawing triangle to draw perpendicular line segments.

Example

M

L

N

K

---

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

E   F

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

C

D

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

Q

V

P

W

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.

C •

•
M

• D

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

E
•

• S

T •

•
F

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.

<center>• O</center>

<center>M •————————————————————• N</center>

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 $\overline{QS}$.

<center>P •————————————————————• Q</center>

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

_____

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 $\overline{DE}$.

D

$A \bullet$ ————————— $\bullet B$

C

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

_____

Check with a
drawing triangle.

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: —————————————————

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? _____

Put On Your Thinking Cap!

Problem Solving

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

J •————————•————————————————————• K
           A
                    road

L •———————————————————•————————• M
                      B

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? _____

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 in.

1 in.

A

1.

1 m

1 m

B

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 = _____ m²

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.

1 cm

1 cm

Rectangle	Length	Width	Area = Length × Width
A	3 cm	2 cm	6 cm²
B			
C			
D			
E			
F			
G			

Complete to find the area of each figure.

3.

1 yd

1 yd

Area = length × width

= _____ × _____

= _____ yd²

The area is _____ square yards.

4.

16 ft

4 ft

Area = _____ × _____

= _____ ft²

The area is _____ square feet.

Find the perimeter and area of each rectangle or square.

Example

7 ft

2 ft

Perimeter = ____18____ ft

Area   = ____14____ ft²

5.

4 in.

4 in.

Perimeter = _____ in.

Area   = _____ in.²

6.

6 ft

2 ft

Perimeter = _____ ft

Area   = _____ ft²

7.

5 yd

4 yd

Perimeter = _____ yd

Area   = _____ yd²

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?
>
> 3 yd
>
> Area = length × width
>   = 3 × 2
>   = 6 yd²
>
> 2 yd
>
> 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?

5 m

3 m

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?

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.

11.

— *Example* —

Estimated area

= ____14–15____ square units

Estimated area

= _____ square units

12.

Estimated area = _____ square units

Math Journal

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

6 in.

4 in.

A

2 m

8 m

B

5 ft

5 ft

C

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: _____

2. Perimeter of figure B: _____

3. Area of figure C: _____

Practice 2   Rectangles and Squares

Find the perimeter of each figure.

Example

7 cm

4 cm

Perimeter of rectangle

= __7__ + __4__ + __7__ + __4__

= __22__ cm

The perimeter of the rectangle is __22__ centimeters.

1.

6 in.

Perimeter of square = 4 × _____

= _____ 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.

Length of one side = perimeter ÷ 4
$$= 20 ÷ 4$$
$$= 5 \text{ ft}$$

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

?

perimeter = 20 ft

---

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

?

perimeter = 160 yd

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.

?

5 mi

perimeter = 32 mi

Solve. Show your work.

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

9 cm

?

perimeter = 24 cm

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

6 yd

?

perimeter = 18 yd

Practice 3 Rectangles and Squares

Find the area of each figure.

Example

12 ft

6 ft

Area of the rectangle = __12__ × __6__

= __72__ ft²

The area of the rectangle is __72__ square feet.

1.

9 cm

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.

?

area = 78 yd^2 6 yd

Length x width = area
Length x 6 = 78 yd^2
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.

area = 56 cm^2 ?

8 cm

The width of the rectangle is _____ centimeters.

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.

? area = 84 m²

7 m

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 =
64 in.²

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

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

? area = 100 m²

    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.

?

5 mi   area = 45 mi²

b. Find the perimeter.

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

a. Find the length.

36 in.

?

perimeter = 156 in.

b. Find the area.

Practice 4   Composite Figures

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

Example

16 in.

13 in.

4 in.

4 in.

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.

5 yd

6 yd

8 yd

3 yd

3 yd

24 yd

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

Solve. Show your work.

4.   Find the perimeter of the figure.

16 cm

42 cm

Perimeter = _____ cm

34 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}

9 in.

10 in.

6 in.

3 in.

Area = ___72___ in.^{2}

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

5.

Area = _____ ft²

6.

Area = _____ m²

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.

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 = _____ $\times$ _____

 = _____ ft^2

Area of small rectangle = _____ $\times$ _____

 = _____ 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.

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.

15 in.

4 in.

3 in.

4 in.   4 in.

Area of large rectangle = _____ $\times$ _____

= _____ in.^{2}

Area of small rectangle = _____ $\times$ _____

= _____ in.^{2}

Area of shaded part = _____ $-$ _____

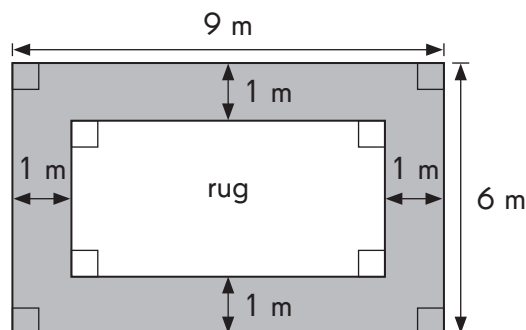= _____ in.^{2}

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.

9 m

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.
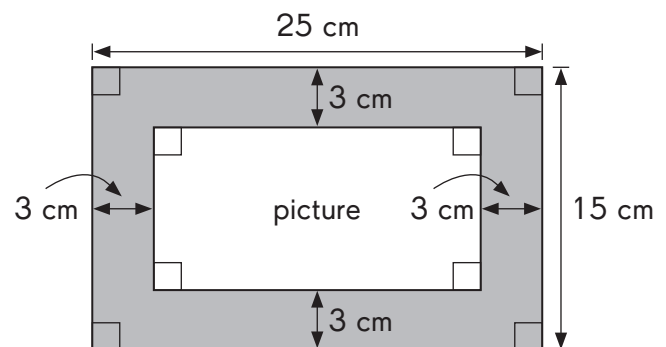
1 m

1 m rug 1 m

6 m

1 m

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.
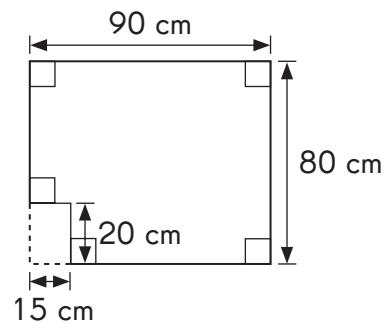

5. A rectangular picture frame measures 25 centimeters by 15 centimeters. It has a wooden border 3 centimeters wide. To fit the picture frame, how large should a picture be?

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.
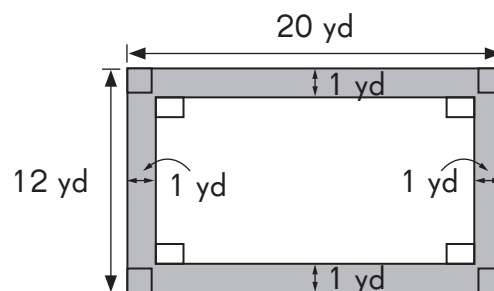

90 cm

80 cm

20 cm

15 cm

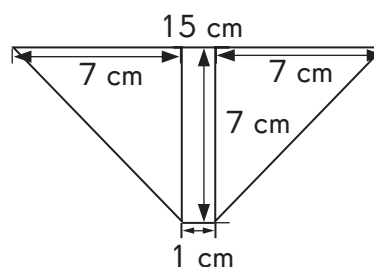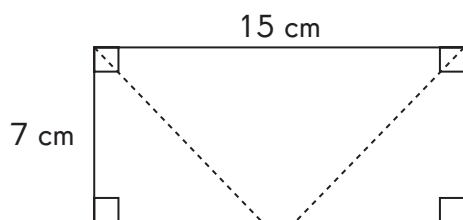**b.**   Find the perimeter of the remaining piece of cardboard.

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.

20 yd

1 yd

12 yd   1 yd   1 yd

1 yd

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

15 cm

7 cm

15 cm

7 cm   7 cm

7 cm

1 cm

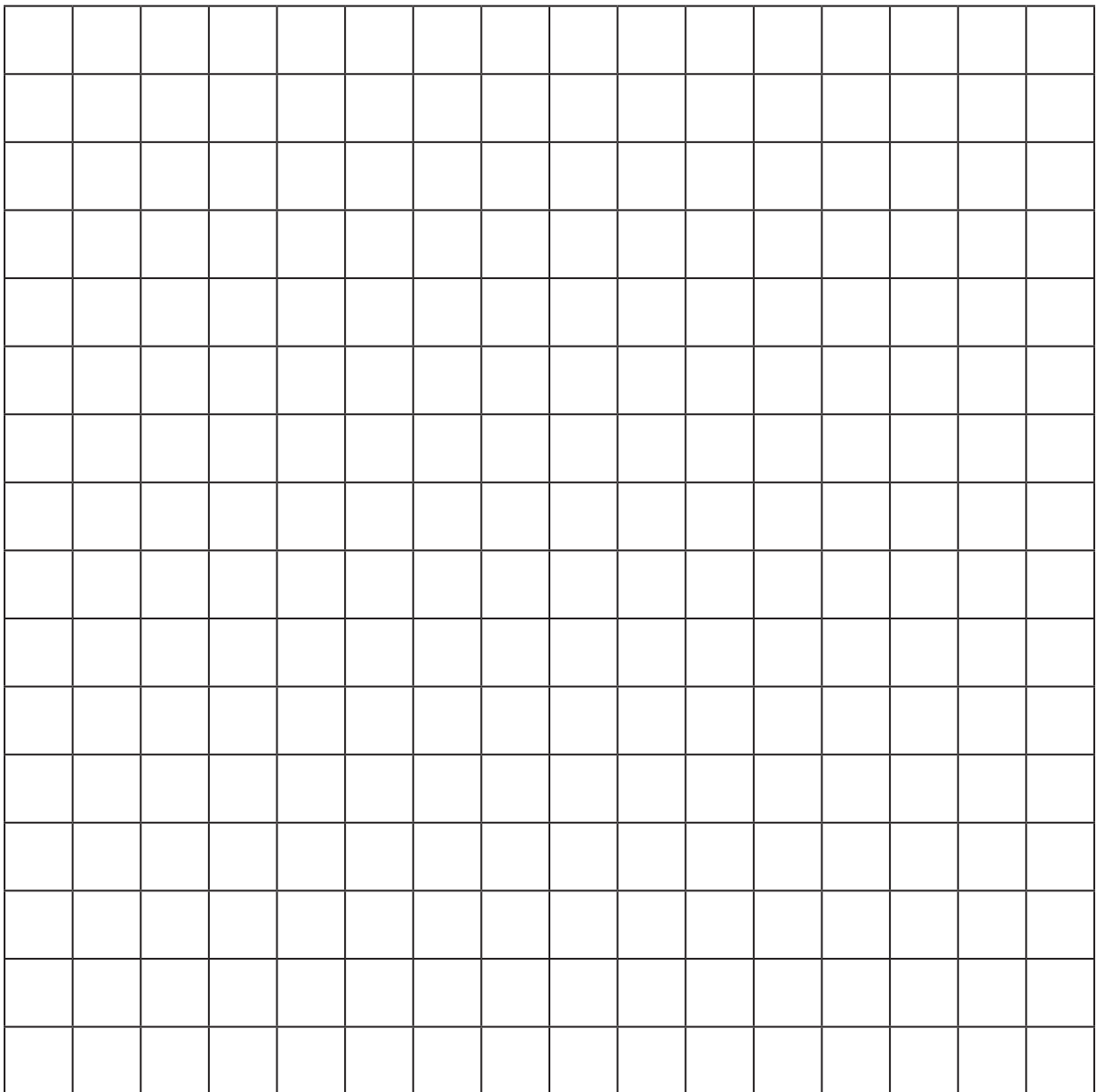Find the area of the figure formed.

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?
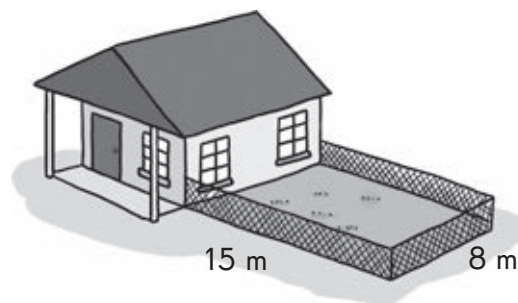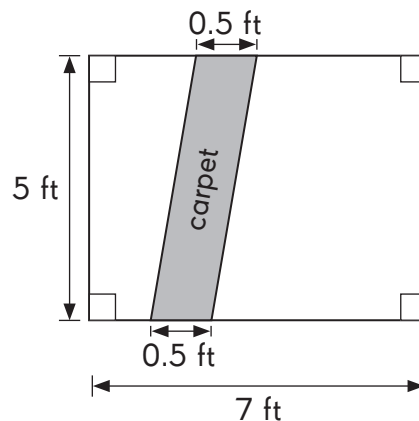
Solve. Show your work.

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.

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?
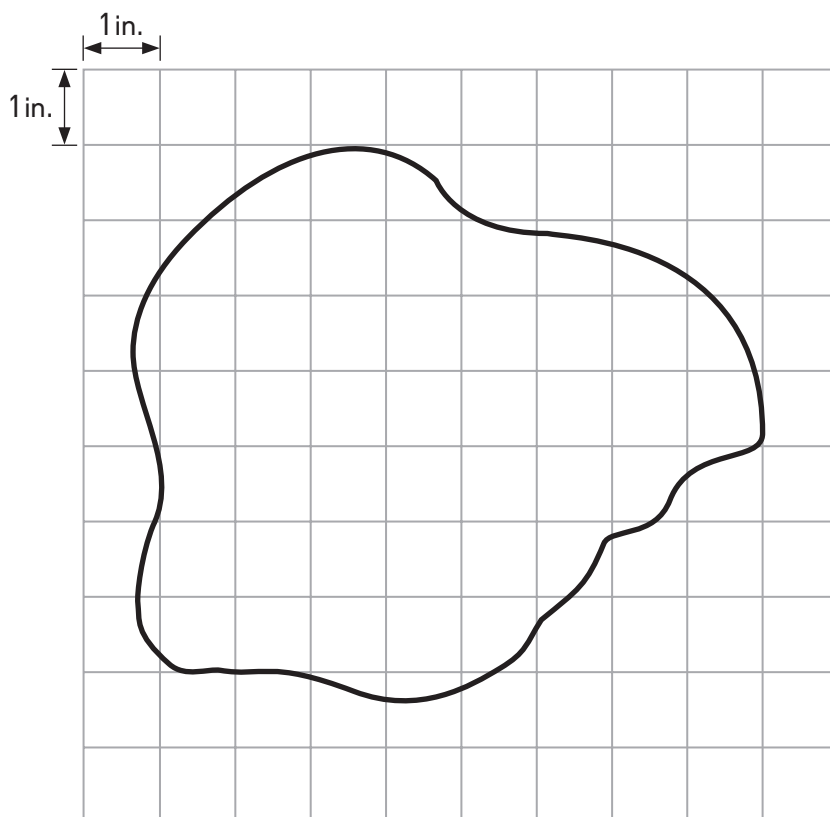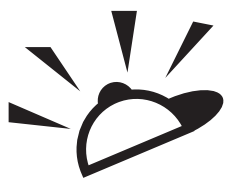
15 m   8 m

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?

0.5 ft

carpet

5 ft

0.5 ft

7 ft

Estimate the area.

6.   Peter wanted to make a collage of a park.
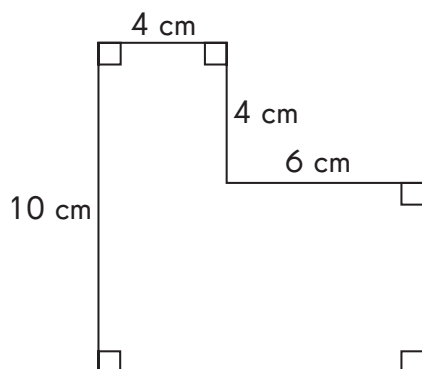   How much paper would he need to make this pond?
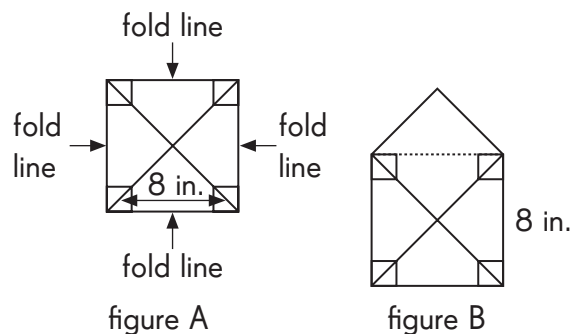
Put On Your Thinking Cap!

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

```
      4 cm
    ┌──────┐
    │      │ 4 cm
    │      └────┐
    │    6 cm  │
10 cm│          │
    │          │
    └──────────┘
```

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.