LESSON 61

• Squares
• Multiplication Facts: Square Numbers

Power Up

facts

Power Up 61

jump start

Count up by 7s from 0 to 70.
Count up by 10s from 5 to 95.

Write two multiplication facts using the numbers 2, 12, and 24.

Draw a rectangle that is 1 inch long and 1 inch wide.

mental math

a. **Number Sense:** 10 + 6 + 4

b. **Time:** It is 2:45 p.m. How many minutes is it until 3:00 p.m.?

c. **Money:** One yo-yo costs $0.45. Shantessa bought one yo-yo with $1.00. How much change did she receive?

d. **Money:** Find the value of these bills and coins:

problem solving

Jill listened to her favorite radio station from 4:00 p.m. to 5:00 p.m. During that hour, the radio station played 3 commercials. Each commercial lasted 4 minutes. Altogether, how many minutes of commercials did the radio station play between 4:00 and 5:00?

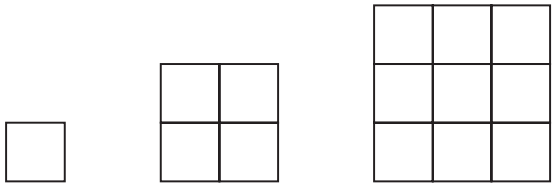
New Concepts

Squares

Tiles are often used to cover floors, shower walls, and counter tops. Many tiles are shaped like **squares.** Remember that a square is a special kind of rectangle with four sides of equal length. We can arrange square tiles to make larger squares.

Example 1

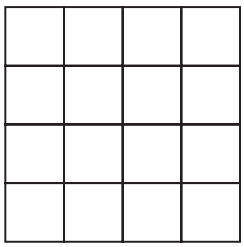
We can make square patterns using 1 tile, 4 tiles, or 9 tiles.



1 tile 4 tiles 9 tiles

How many tiles are needed to make the next square pattern in this sequence?

We add one more row and column of tiles. We count **16 tiles.**



Generalize Can you name another number of tiles that can make a square pattern?

Multiplication Facts: Square Numbers

Numbers like 1, 4, and 9 are sometimes called **square numbers.** A **square number** is the product of two identical factors. We can write these numbers as multiplication facts.

$$1 \times 1 = 1 \qquad 2 \times 2 = 4 \qquad 3 \times 3 = 9$$

Activity

Squares on a Grid

Materials: color tiles

Use tiles to build squares that show all the square numbers from 1 to 25. You can start with the square numbers 1, 4, and 9. Write a multiplication fact for each square.

On a multiplication table, the square numbers appear diagonally across the table. Each square number is the product of two identical factors.

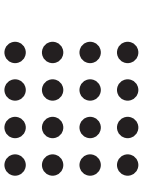
	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

Example 2

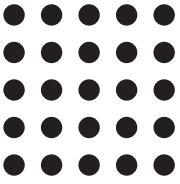
Find each product.

a. 4 × 4 **b. 5 × 5**

We can make square patterns or use a multiplication table to find the products.



4 × 4 = 16



5 × 5 = 25

Example 3

The square number 121 is the product of which two identical factors?

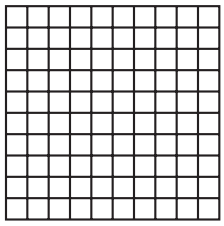
We see on the multiplication table that 121 is the product of **11 × 11.**

Lesson Practice

a. Copy and complete each multiplication fact below.

1 × 1	2 × 2	3 × 3	4 × 4
5 × 5	6 × 6	7 × 7	8 × 8
9 × 9	10 × 10	11 × 11	12 × 12

b. This square is made with 10 rows of 10 tiles. How many tiles are in this square?



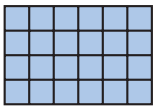
c. Here is a sequence of square numbers. What are the next three numbers in the sequence?

1, 4, 9, 16, _____, _____, _____, . . .

Written Practice

Distributed and Integrated

1. *(53)* Square tiles covered the front porch. How many tiles were used?



2. *(57)* Write a multiplication fact for the array of tiles in problem **1.**

Formulate Write number sentences for problems **3** and **4.** Then write a complete sentence to answer each question.

3. *(20, 26)* Fresh pies were on sale for $7.99. If the regular price was $9.87, how much is saved by buying them on sale?

4. *(34, 60)* Ruben took six big steps to cross the room. About how many feet is it across the room? (Each big step is about a yard, which is three feet.)

5. (32) The odometer of John's car showed this display:

a. Write the number of miles shown using digits.

b. Use words to state the number of miles the car has been driven.

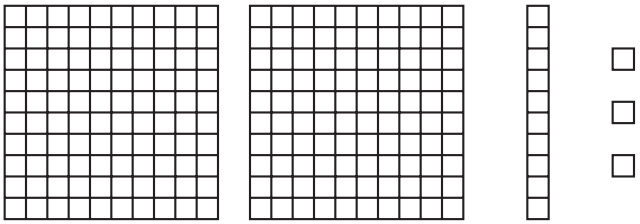
6. (56, 59, 61) **Multiple Choice** Which of these multiplications does *not* equal 16?

A 16×1 **B** 8×2 **C** 8×8 **D** 4×4

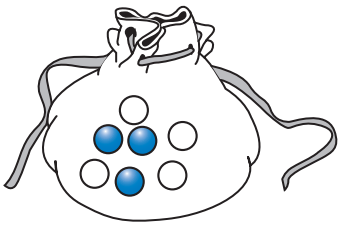
7. (33) Order these events from first to last. Then make a timeline from 1950 to 2000 to display the events.

1976: Mars *Viking* probe launched
1969: Moon landing
1997: Mars *Sojourner* probe launched
1964: First space walk

8. (11) What number is shown by the base ten blocks?



9. (44) What fraction of the marbles in the bag are blue?



10. (50) If Chad picks one of the marbles in problem **9** without looking, which color is he more likely to pick: white or blue?

11. (49) Compare these two fractions: $\frac{3}{7} \bigcirc \frac{4}{7}$

12. (52, 58) **Represent** Draw a rectangle 3 inches long and 2 inches wide. What is the perimeter of the rectangle?

13. (59, 61) Find each product:

a. 9×6 **b.** 9×5 **c.** 7×7

Add or subtract, as shown:

14. (21, 22) $38¢ + 75¢ + \$1$

15. (23) $\$450 - \$375$

16. (16) $\$463 + \$98$

17. (55, 61) 11×11

18. (2, 32) **Conclude** Find the next four numbers in this sequence:

200, 400, 600, _____, _____, _____, _____, . . .

19. (32) Write 73,492 in expanded form.

20. (40) A flock of 95 birds hopped around the park. Some flew away to find more food. Then there were 67 birds in the park. How many birds flew away? Write and solve a subtraction number sentence to find the answer.

Early Finishers

Real-World Connection

Roberto's team scored 59 points in a basketball game. Ian's team scored fewer points than Roberto's team. Could the total number of points scored by both teams be 123? Explain.

LESSON 62

• Area, Part 1

Power Up

facts

Power Up 62

jump start

Count down by 3s from 30 to 0.
Count down by 4s from 40 to 0.

Write the year "two thousand eleven" as digits.

Draw a $3\frac{1}{2}$-inch segment on your worksheet. Record the length next to the segment.

mental math

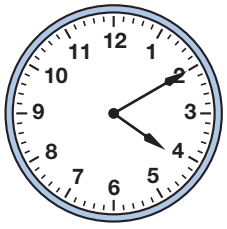
a. **Fractions:** Compare these fractions using the symbol <, >, or =.

$$\frac{2}{5} \bigcirc \frac{4}{5}$$

b. **Money:** $1.50 + $1.00

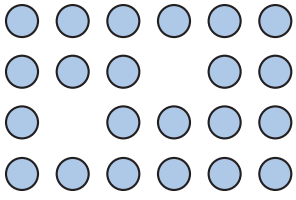
c. **Number Sense:** 22 + 11

d. **Time:** It is afternoon. Kim began reading a book at the time shown on the clock. She stopped reading 2 hours later. What time did she stop reading the book?



problem solving

A **dozen** is twelve. Ms. Kalinski arranged two dozen muffins in a 4 × 6 array. Then the children ate some of the muffins. This diagram shows the muffins that are remaining.

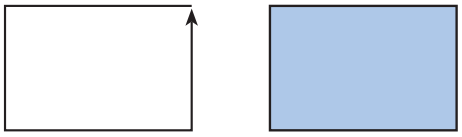


How many muffins did the children eat? How many muffins are left? Use a "some went away" pattern to solve the problem.

New Concept

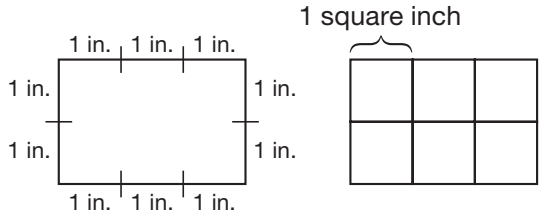
In Lesson 58 we measured the perimeter of a rectangle. Recall that the perimeter of a rectangle is the distance around it. To measure perimeter, we add the lengths of the four sides of the rectangle.

In this lesson we will measure the **area** of a rectangle. The area of a rectangle is the amount of surface inside it. To measure area, we count the number of squares of standard size that fit inside the rectangle.



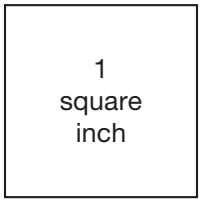
perimeter area

Here we show the perimeter and area of a 3-inch by 2-inch rectangle.



The perimeter of the rectangle is 10 inches, but the area is 6 square inches.

Notice that we use the words **square inches** to describe the area. Below we show an area equal to one square inch.



To measure small areas, we can use square inches. To measure larger areas, we can use square feet or square yards.

Activity

Area

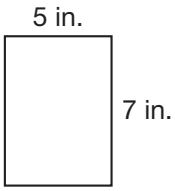
On **Lesson Activity 23,** trace over grid lines to make the rectangles described below. Next to each rectangle, write its perimeter and area. Be sure to name the area in square inches.

1. Near the top of the grid, trace a 5-inch by 2-inch rectangle. What is its perimeter and area?
2. Trace a 6-inch by 3-inch rectangle. What is its perimeter and area?

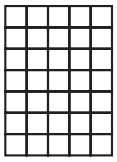
Generalize Write a number sentence using the numbers 5, 2, and 10. Write another number sentence using the numbers 3, 6 and 18. What kind of sentences did you write? What do you think is another way to find the area of a rectangle besides counting squares?

Example

A 5-inch by 7-inch photograph has an area of how many square inches?



One way to find the area is to make 7 rows of 5 squares and count the number of squares. Another way to find the area of a rectangle is to multiply the length and width of the rectangle.



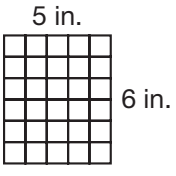
7 in. × 5 in. = **35 square inches**

Lesson Practice

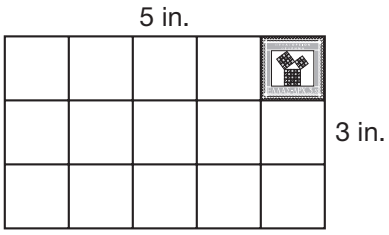
a. Multiple Choice To measure area, we count

A segments. **B** squares. **C** circles. **D** rectangles.

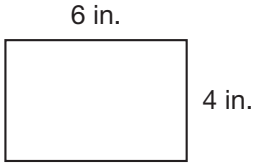
b. Stan covered the front cover of a journal with 1-inch square stickers. What was the area of the front cover?



c. Silvia placed a stamp that was 1 square inch in the corner of a 3-inch by 5-inch envelope. Altogether, how many stamps would be needed to cover the front of the envelope?



d. What is the perimeter and area of a 6-inch by 4-inch rectangle?



Written Practice

Distributed and Integrated

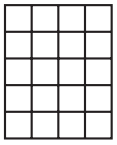
1. (56, 60) **Formulate** Miguel bought 8 boxes of tiles for $10 per box. What was the cost of all ten boxes? Write a number sentence. Then write a complete sentence to answer the question.

2. (44) **a.** What fraction of the tiles are blue?

b. What fraction of the tiles are white?

3. (49) Compare the two fractions in problem **2.**

4. (52, 62) Barry made this rectangle out of one-inch square tiles.



a. How long is the rectangle?

b. How wide is the rectangle?

c. How many tiles did he use?

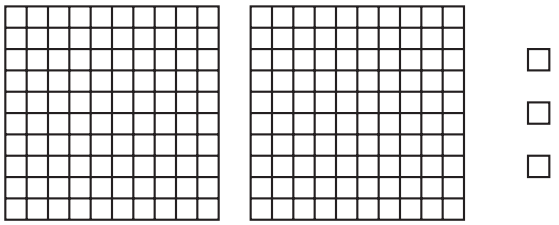
d. What is the area of the rectangle?

5. (58) What is the perimeter of the rectangle in problem **4?**

6. (59, 61) **Multiple Choice** Which of these multiplication facts equals 10?

A 5×5 **B** 9×1 **C** 2×5 **D** 8×2

7. (11) What number is shown by this model?



8. (56) Multiply:

a. 10×6

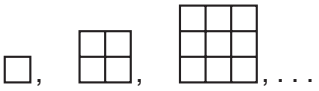
b. 10×12

9. (32) What is the place value of the 6 in 825,630?

10. (48) Point *A* represents what mixed number on this number line?

11. (39) For a school fundraiser Roderick sold 132 key rings and 95 T-shirts. How many more key chains did Roderick sell than T-shirts? Write and solve a greater-lesser-difference number sentence to find the answer.

12. (2, 61) **Represent** Draw the next square in this sequence:



13. (2, 61) **Conclude** The square numbers in problem **12** are 1, 4, 9, ... What are the next two numbers in this sequence?

14. (57) What multiplication fact is shown by this array?

xxxxxx
xxxxxx
xxxxxx

15. (22) $36¢ + 95¢ + \$2$

16. (28) $\$300 - \$104$

17. (46) Write the mixed number $4\frac{1}{2}$ using words.

18. (9) Find the missing addend.

a. $10 + m = 25$

b. $24 + n = 34$

19. (32) Write 25,760 in expanded form.

20. **Multiple Choice** Which number sentence could you use to find the amount of money Kurt spent on pencils? (40)

Kurt had $10.75. He bought six pencils. Then he had $4.80.

A $10.75 + $4.80 = ☐

B $10.75 − ☐ = $4.80

C ☐ − $4.80 = $10.75

D $4.80 + $10.75 = ☐

Real-World Connection

Bryan's teacher asked him to sharpen 55 pencils. When he was finished, he handed out 32 pencils to his classmates and gave the rest to the teacher. The next day, Bryan sharpened another 55 pencils. This time he gave all of the pencils to his teacher. How many sharpened pencils did Bryan give his teacher altogether?

LESSON 63

• Area, Part 2

Power Up

facts

Power Up 63

jump start

Count up by square numbers from 1 to 144.
Count up by 100s from 0 to 2000.

Draw an array to show the multiplication fact 2×3.

Label the number line by 5s from 0 to 50.

mental math

a. **Estimation:** Round 289 to the nearest hundred.

b. **Calendar:** How many days are in 5 weeks?

c. **Money:** \$1.20 − 40¢

d. **Fractions:** What fraction of the rectangle is shaded?

problem solving

If a coin is flipped, it can land showing either "heads" or "tails." Emilio will flip a quarter two times. One possibility is that the first flip will be heads and the second flip will also be heads.

1st flip

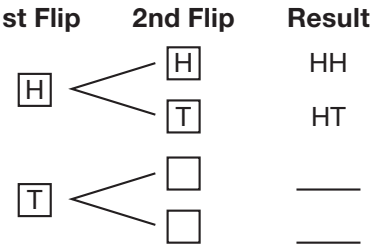
2nd flip

Another possibility is that the first flip will be heads and the second flip will be tails.

1st flip

2nd flip

What are the other possibilities Emilio can get by flipping a quarter two times? Copy and complete the tree diagram at right to help you find the combinations.



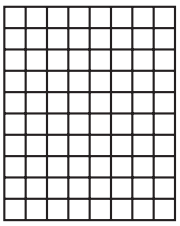
New Concept

In Lesson 62 we used square inches to measure the areas of small rectangles. To measure larger areas, like the area of a floor, we often use **square feet** or **square yards.**

If a floor is covered with one-foot square tiles, we can find the area of the floor in square feet by counting tiles.

Example 1

The floor of a small room is covered with one-foot square tiles. Bill counted 10 tiles along one wall and 8 tiles along a perpendicular wall. How many tiles covered the whole floor? What was the area of the room?



There are 8 tiles in each of the 10 rows. There are $10 \times 8 = 80$ **tiles.** The tiles are one-foot squares, so the area of the floor is **80 square feet.**

Activity

Estimating Area in Square Feet

Use two one-foot squares to help you estimate the areas of some rectangular surfaces in the classroom, such as a desktop, tabletop, the inside surface of a door or window, or a bulletin board.

1. Name the object you measured on a piece of grid paper.
2. Draw a picture of its rectangular surface, with each square on the grid paper representing one square foot on the actual object.

3. Write its estimated area.

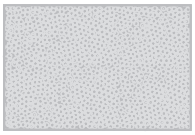
4. Describe how you found the area.

Carpeting is often sold by the square yard. A square that has sides 1 yard long has an area of one square yard.

Analyze There are 3 feet in one yard. How many square feet are in a square yard? How do you know?

Example 2

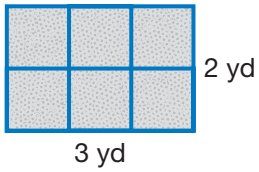
The picture shows a piece of carpet that is 3 yards long and two yards wide.



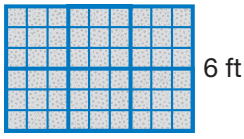
a. The carpet covers an area of how many square yards?

b. The carpet covers an area of how many square feet?

a. A 3-yard by 2-yard rectangle has an area of **6 square yards.**

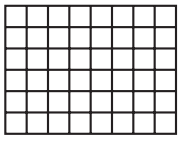


b. Each square yard equals 9 square feet. So 6 square yards is 6 × 9 square feet, which is **54 square feet.**



Lesson Practice

a. The floor of a small room is covered with one-foot square tiles. Bill counted 6 tiles along one wall and 8 tiles along a perpendicular wall. How many tiles cover the whole floor? What is the area of the room?



b. How many square yards of carpet are needed to cover the floor of a room that is 4 yards wide and 5 yards long? You can use color tiles to help you answer this question.

c. One square yard is 9 square feet. Copy and complete the table below.

Square yards	1	2	3	4	5	6
Square feet	9	18				

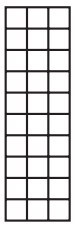
Written Practice

Distributed and Integrated

1. (37, 60) Monica walked from her garage to the street to estimate the length of her driveway. She took ten big steps. Each big step was about 3 feet. About how many feet long is her driveway?

2. (36) **Formulate** Jimmy's great-grandfather is 84 years old. He retired when he was 65 years old. How many years has he been retired? Write a number sentence. Then write a complete sentence to answer the question.

One-foot square tiles covered the sidewalk. See the picture at right to answer problems **3–5.**



3. (53) **a.** How long is the sidewalk?

b. How wide is the sidewalk?

4. (63) What is the area of the sidewalk?

5. (56, 57) What multiplication fact is shown by this array of squares?

6. (55) **Multiple Choice** Which of these multiplication facts equals 20?

A 2×10 **B** 19×1 **C** 5×5 **D** 10×10

7. (11) **Multiple Choice** Which shows five ones and six hundreds?

A 56 **B** 560 **C** 650 **D** 605

8. (40) Find the missing number: $\square - 398 = 245$.

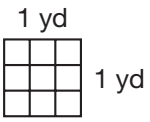
9. (56) Multiply:

a. 6×10 **b.** 16×10

10. (32) What is the place value of the 4 in 412,576?

Analyze Look at the square to answer problems **11** and **12.**

11. (63) One yard is 3 feet. The picture shows one square yard. How many square feet is one square yard?

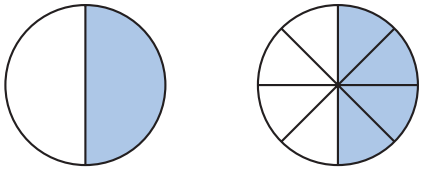


12. (52, 58) **a.** What is the perimeter of the square in yards?

b. What is the perimeter of the square in feet?

13. (42, 46) Draw a picture to represent the mixed number $2\frac{1}{3}$.

14. (47) Write the two fractions shown by the shaded circles. Then compare the fractions.



15. (55, 61) Find each product on a multiplication table:

a. 4×8 **b.** 3×9 **c.** 7×7

Add or subtract, as shown:

16. (16) $498 + $679

17. (22, 24) $0.87 + $0.75 + $0.93

18. (26, 28) $5.00 − $3.46

19. (19) $323 − $100

20. (38) When Ismael came into class after lunch, he noticed the clock. Write the time in digital form.

LESSON 64

• Multiplication Facts: 9s

Power Up

facts

Power Up 64

jump start

Count down by 3s from 45 to 0.

Count down by 9s from 90 to 0.

It's night. Draw hands on your clock to show 10:48. Write the time in digital form.

The daily high on Monday was 36°F. On Tuesday it was 6 degrees warmer. Mark your thermometer to show the high temperature on Tuesday.

mental math

a. **Number Sense:** 43 + 9

b. **Money:** 90¢ + 90¢

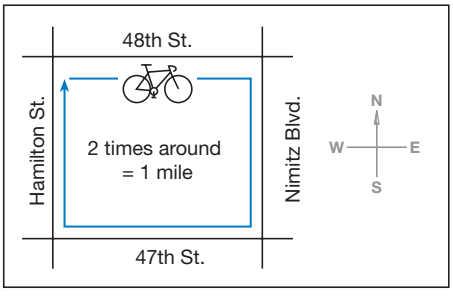
c. **Money:** $10.00 − $2.00

d. **Patterns:** What is the next number in the pattern below?

12	14	13	15	_____

problem solving

Juan rides his bike around the block along the path shown. Two times around the block is 1 mile.
How many times around the block must Juan ride to travel 3 miles?



New Concept

Look down the 9s column of a multiplication table for patterns. Starting with the product of 9×2, notice how the digits in the tens place count up and the digits in the ones place count down. Also notice how the two digits of each product have a sum of 9. These two patterns continue through 9×10.

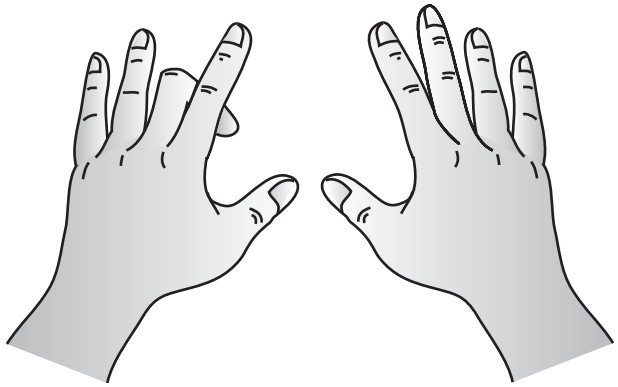
	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

$9 \times 2 = 18$
$9 \times 3 = 27$
$9 \times 4 = 36$
$9 \times 5 = 45$
$9 \times 6 = 54$
$9 \times 7 = 63$
$9 \times 8 = 72$
$9 \times 9 = 81$

Generalize Look at the products from 9×2 through 9×9. Can you find another pattern?

Here is a fun way to find the nines multiplication facts from 9×2 to 9×9 using your fingers. Hold your hands out in front of you and imagine that your fingers are numbered 1 through 10 from left to right.

To find 3 × 9, fold down the number 3 finger. The fingers to the left of the folded finger count as tens. There are two of them. Two tens is 20. The fingers to the right of the folded finger count as ones. There are seven. Twenty and seven is 27.



Example 1

Find each product:

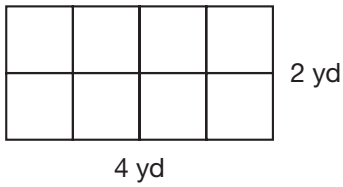
a. 7 × 9 **b. 8 × 9**

Until we have learned the nines facts, we can use a multiplication table or patterns to find the products.

a. 7 × 9 = **63** **b.** 8 × 9 = **72**

Example 2

One square yard is 9 square feet. A rug that is 8 square yards covers how many square feet?



Each square yard is 9 square feet, so we multiply 9 square feet by 8.

8 × 9 square feet = **72 square feet**

Lesson Practice

Find each product.

a. 9 × 3 **b.** 9 × 4 **c.** 9 × 6

d. 9 × 10 **e.** 9 × 11 **f.** 9 × 12

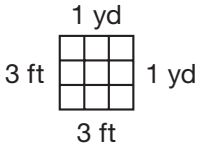
Written Practice

Distributed and Integrated

1. (60, 64) **Formulate** Tickets for the movie were $9 each. Mr. Chen bought 4 tickets. How much did the tickets cost? Write a number sentence. Then write your answer in a complete sentence.

2. (14, 20) Mr. Chen paid for the movie tickets in problem **1** with two $20 bills. How much money should he get back?

3. (63, 64) Using square tiles with sides 1 foot long, Miguel covered one square yard with 9 tiles. How many tiles does Miguel need to cover 3 square yards?



4. (35) **Represent** Draw a square with sides 3 inches long.

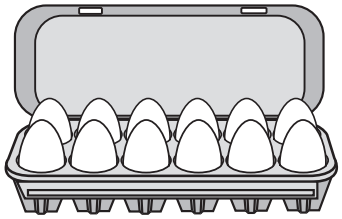
5. (58) What is the perimeter of the square you drew in problem **4?**

6. (62) What is the area of the square you drew in problem **4?**

7. (42, 43) **Represent** Draw two rectangles that are the same size and shape. Shade $\frac{1}{2}$ of one rectangle. Shade $\frac{1}{3}$ of the other rectangle. Then compare these fractions:

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

8. (57) A dozen eggs in a carton is an array. This array illustrates what multiplication fact?



9. (44) If one egg is removed from the carton in problem **8,** then what fraction of a dozen eggs is left?

10. (2) **Conclude** Copy and continue this table to find the number of eggs in 4 dozen:

Number of Dozen	1	2	3	4
Number of Eggs	12	24		

11. (64) Find each product:

a. 9×10 **b.** 7×9 **c.** 9×4

12. (61) Find each product:

a. 9×9 **b.** 8×8 **c.** 7×7

13. (55) Find 77 on a multiplication table. Which two numbers have a product of 77?

14. (35) Use your ruler to find the length of segment *AB.*

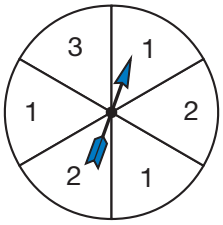
15. (16) $\$999 + \$999$

16. (28) $\$100 - \$91$

17. (10, 54) $9 + 9 + 9 + 9 + 9 + 9$

18. (44) How many nickels equal a quarter? A nickel is what fraction of a quarter?

Look at the spinner to answer problems **19** and **20.**



19. (50) The spinner is least likely to stop on which number?

20. (47) **Verify** Todd thinks the sections with 1 are $\frac{3}{6}$ of the spinner. James thinks the sections with 1 are $\frac{1}{2}$ of the spinner. Who is right? Why?

LESSON 65

• Angles

Power Up

facts

Power Up 65

jump start

Count up by 6s from 0 to 60.

Count up by 12s from 0 to 120.

Write two multiplication facts using the numbers 4, 9, and 36.

Write $714.20 as words.

mental math

a. Number Sense: Compare these numbers using the symbol <, >, or =.

1,045 ◯ 1,405

b. Number Sense: 3 + 6 + 6 + 3

c. Money: $1.20 + $1.00

d. Number Line: Which point shows the number 210?

problem solving

Chris is hiking along a trail in the mountains. As he hikes, he counts the blue signs that mark the trail. The table at right shows the number of signs he sees along the way.

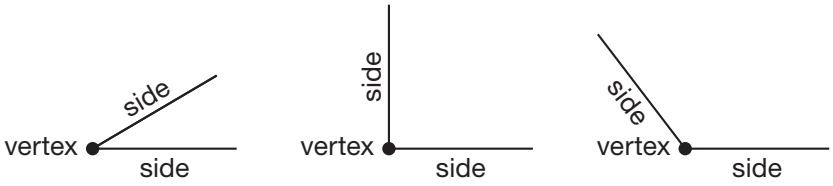
Distance	Total Number of Signs
1 mile	8
2 miles	16
3 miles	24
4 miles	32

Copy the table on your paper. Continue the pattern to predict how many signs Chris will see if he hikes 7 miles.

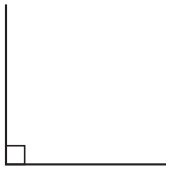
New Concept

An **angle** is an open figure with two **sides** that meet at a **vertex.**

Angles



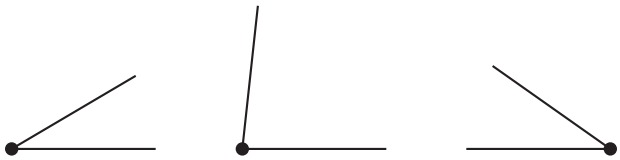
Remember that square corners are called right angles. To show that an angle is a right angle, we can draw a small square in its corner.



Generalize How many right angles does a rectangle have?

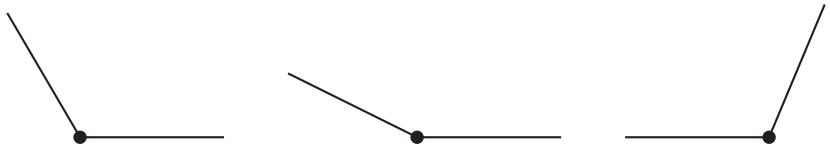
An angle that is smaller than a right angle is an **acute angle.**

Acute Angles



An angle that is larger than a right angle is an **obtuse angle.**

Obtuse Angles



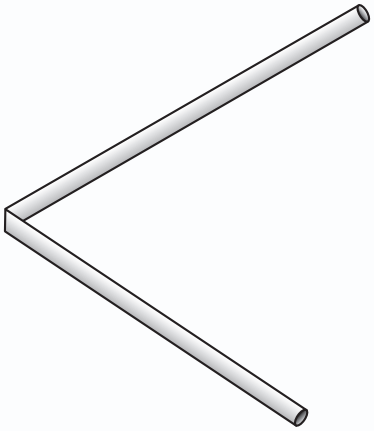
An angle that looks like a straight line is a **straight angle.**

Activity

Angles

Materials: one straw for each student

By bending straws we can make models of angles. The point where the straw bends is the vertex.

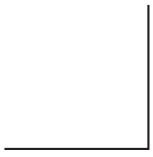


As a class, bend straws to form acute angles, right angles, and obtuse angles as you teacher directs.

Example

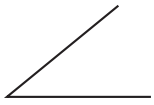
Label each angle as acute, right, or obtuse.

a.



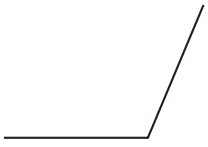
a. right

b.



b. acute

c.



c. obtuse

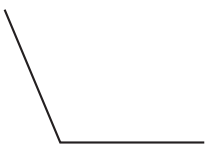
Lesson Practice

a. What is the name of the point where the sides of an angle meet?

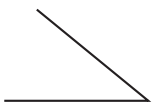
b. What kind of angle is each angle of a rectangle?

Name each type of angle shown below.

c.



d.

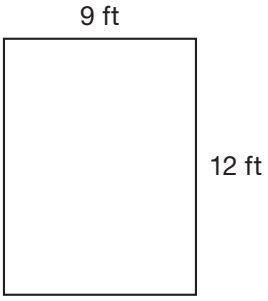


e.

Written Practice

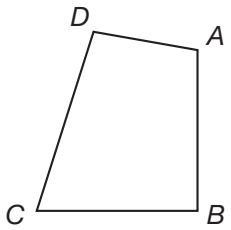
Distributed and Integrated

(62, 63) **1.** Cynthia wants to put tiles on a floor that is 12 feet long and 9 feet wide. Each tile has sides one foot long. What numbers can Cynthia multiply to find how many tiles she needs to cover the entire floor?



(55, 64) **2.** What is the area of the rectangle in problem **1?**

A wading pool at the park has the shape of figure *ABCD.* Look at this picture to answer problems **3–5.**



(65) **3.** Angle *A* is a right angle.

a. Which angle is acute?

b. Which angle is obtuse?

(51, 65) **4.** **Explain** Is the pool the shape of a rectangle? Explain your answer.

(58) **5.** Sides *AB* and *BC* are each 12 feet long. Side *CD* is 13 feet long. Side *AD* is 7 feet long. What is the perimeter of the pool?

(56, 60) **6.** There is a row of tiles along the edge of the pool. There are 3 tiles in one foot. How many tiles are there in 10 feet?

(25) **7.** Deanna saw some coins in the pool. What was the total value of the coins?

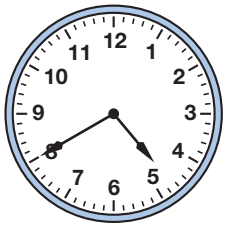
(44) **8.** Three of the 7 children in the pool were girls.

a. What fraction were girls?

b. What fraction were boys?

9. Compare the two fractions in problem **8.**
(43)

10. Sam looked at the clock. The pool closes at 5:00 o'clock. In how many minutes does the pool close?
(3)

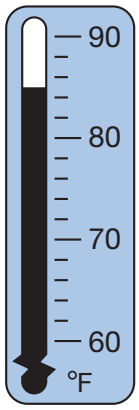


11. Name the fraction or mixed number shown on each number line.
(48)

a.

b.

12. **Analyze** Gina looked at the thermometer in the pool to find the temperature of the water. How warm was the water?
(4)



13. **Represent** Draw a rectangle $\frac{3}{4}$ inches long and $\frac{1}{2}$ inch wide.
(35, 52)

14. Find each product.
(61)

a. 3×3 **b.** 4×4 **c.** 6×6

15. Find each product.
(64)

a. 3×9 **b.** 9×4 **c.** 9×8

16. $81 - \square = 50$
(40)

17. $81 + \square = 150$
(9)

18. $9 + 9 + 9 + 9 + 9 + 9 + 9$
(10)

19. **Multiple Choice** Which fraction does *not* equal 1?
(46)

A $\frac{2}{2}$ **B** $\frac{3}{3}$ **C** $\frac{10}{11}$ **D** $\frac{12}{12}$

20. Point *B* represents what number on this number line?
(33)

LESSON 66

• Parallelograms

Power Up

facts

Power Up 66

jump start

Count up by halves from 5 to 10.
Count up by fourths from 2 to 4.

Draw an array to show the multiplication fact 1×4.

Write these numbers in order from least to greatest.

625 695 655 595

mental math

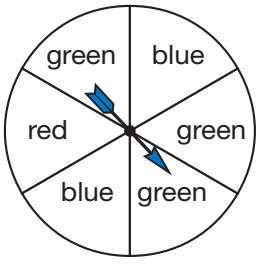
a. **Fractions:** Compare these fractions using the symbol $<$, $>$, or $=$.

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

b. **Number Sense:** $32 - 9$

c. **Number Sense:** $36 - 8$

d. **Probability:** CeeCee spins the spinner one time. What color is the spinner most likely to land on?

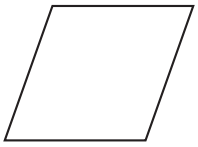


problem solving

Matt likes to solve crossword puzzles. He has a book of puzzles. He started at the beginning of the book and solves one puzzle each day. Matt solved Puzzle #4 on Monday. On what day did Matt solve Puzzle #1?

New Concept

Waylon has some tiles shaped like this:



The tile has 4 sides.

Classify Is the shape a rectangle? How do you know?

Recall that a rectangle has four right angles. This shape does not have four right angles, so it is not a rectangle. We call this four-sided shape a parallelogram. A **parallelogram** is a four-sided flat shape that has two pairs of parallel sides.

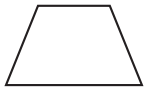
One pair of parallel sides

The other pair of parallel sides

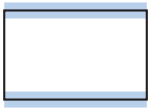
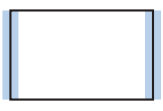
Classify Look at the figures below. Is a rectangle a parallelogram?

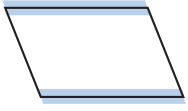
Example 1

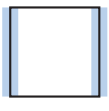
Which of these figures is *not* a parallelogram?

A  **B**  **C**  **D** 

A parallelogram has two pairs of parallel sides. We see two pairs of parallel sides in shapes **A, B,** and **C.**

A  

B  

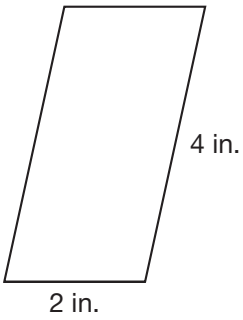
C  

However, shape **D** has only one pair of parallel sides.

Shape D is not a parallelogram.

Example 2

What is the perimeter of this parallelogram?



The parallel sides of a parallelogram are equal in length.

$$2 \text{ in.} + 4 \text{ in.} + 2 \text{ in.} + 4 \text{ in.} = 12 \text{ in.}$$

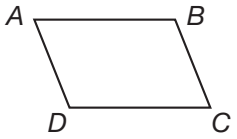
The perimeter of the parallelogram is **12 in.**

We can name an angle of a parallelogram by the letter at its vertex. We can name a side by the letters at the ends of the line segment.

Example 3

a. Which angles of this parallelogram are acute and which are obtuse?

b. Which side is parallel to side *AB*?



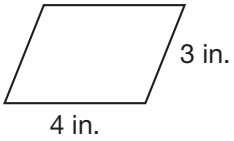
a. Acute angles are less than right angles, so the acute angles are **angle *A*** and **angle *C*.** Obtuse angles are greater than right angles, so the obtuse angles are **angle *B*** and **angle *D*.**

b. The side parallel to side ***AB*** is side ***DC*.**

Lesson Practice

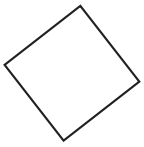
a. Draw a parallelogram that does *not* have right angles.

b. What is the perimeter of the parallelogram?

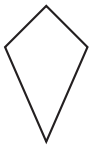


c. **Multiple Choice** Which shape below is *not* a parallelogram?

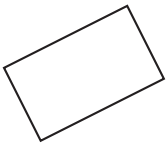
A



B



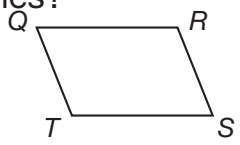
C



D

d. Which shapes in problem **c** are rectangles?

e. Which angles in this parallelogram are obtuse?



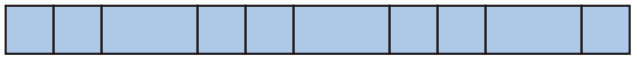
f. Which side of this parallelogram is parallel to side *QT*?

Written Practice

Distributed and Integrated

1. (60, 24) **Formulate** Gwen has 3 boxes of tiles with 40 tiles in each box. Write a number sentence to show how many tiles are in all 3 boxes.

2. (2) **Multiple Choice** Gwen sees this tile pattern around the edge of a shower. What are the next two tiles in the pattern?



____ ____

A

B

C

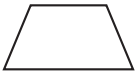
D

3. (8) Write two addition facts and two subtraction facts using 7, 8, and 15.

4. (66) **Multiple Choice** Which shape is *not* a parallelogram?

A

B

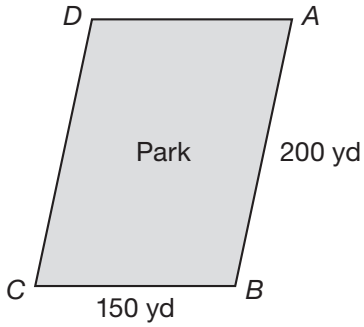


C

D

5. (60, 64) One square yard equals 9 square feet. How many square feet is 9 square yards?

For exercise, Sasha walks around the park every day. Look at the picture of the park for problems **6–9.**



6. What is the shape of the park?
(66)

7. a. Which angles are acute?
(65)

b. Which angles are obtuse?

8. What is the perimeter of the park?
(58)

9. Which side of the park is parallel to side *AB?*
(40, 66)

10. It takes Sasha 14 minutes to walk around the park twice. She started walking at 3:20 p.m. The clock shows the time she finished. Write the time in digital form.
(38)

11. Blaine opened a box of 40 tiles and used 28 of the tiles. How many tiles are left?
(20)

12. Use your inch ruler to measure the segments below to the nearest quarter inch.
(35)

a. How long is segment *WX?*

b. How long is segment *XY?*

c. How long is segment *WY?*

13. There are three colors of marbles in a bag. Kyle picks one marble without looking. Which color is he least likely to pick?
(50)

Marbles in Bag

Color	Number
red	2
blue	3
green	5

14. *(44)* Look at the table in problem **13** to answer **a** and **b.**

a. How many marbles are in the bag?

b. What fraction of the marbles are blue?

15. *(22)* $\$3.75 + \$4.29$

16. *(28)* $\$200 - \$81$

17. *(10, 54)* $9 + 9 + 9 + 9 + 9 + 9 + 9 + 9$

18. *(46)* Write a fraction equal to 1 that has a denominator of 10.

19. *(47)* **Multiple Choice** Which fraction is *not* equal to $\frac{1}{2}$?

A $\frac{2}{4}$ **B** $\frac{3}{6}$ **C** $\frac{4}{7}$ **D** $\frac{5}{10}$

20. *(48)* Point *A* represents what fraction?

Early Finishers

Real-World Connection

Tammy bought 7 pencils for 25 cents each. Then she bought 4 more pencils and gave 3 to her brother. How many pencils does Tammy have left? How much did she spend on the pencils altogether? You may use your manipulatives to help find the answer.

LESSON 67

• Polygons

Power Up

facts

Power Up 67

jump start

Count down by 7s from 70 to 0.

Count up by square numbers from 1 to 144.

Write 6,562 in expanded form.

Draw a $2\frac{1}{4}$-inch segment on your worksheet. Record the length next to the segment.

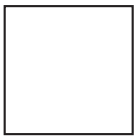
mental math

a. **Number Sense:** 10 + 4 + 7

b. **Number Sense:** 45 + 6

c. **Money:** $10.00 − $4.50

d. **Measurement:** What is the perimeter of the square?



problem solving

Focus Strategy: Work a Simpler Problem

Liz asked her father to download her 3 favorite songs from the Internet. Each song costs 99¢. How much will all 3 songs cost?

Understand We are asked to find the cost of 3 songs that are 99¢ each.

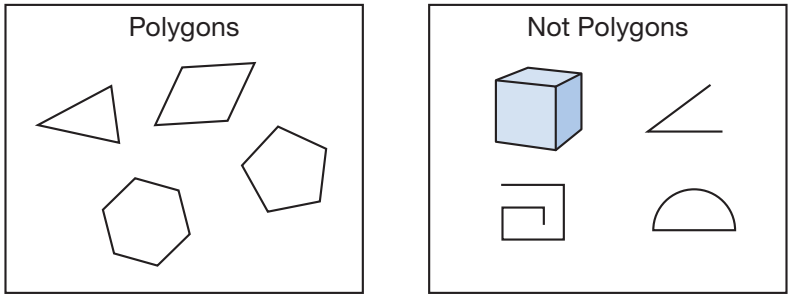
Plan We can *work a simpler problem.*

Solve The price 99¢ is close to $1. We can pretend that each song costs $1. This means 3 songs would cost $3. Each song is 1¢ less than a dollar, so 3 songs is 3¢ less than $3. We count backwards: $2.99, $2.98, **$2.97.**

Check We made our calculation with the amount \$1 because it is a simpler number to work with than 99¢. Our answer makes sense, because $3 \times \$1 = \$3$, and \$2.97 is a little less than \$3.

New Concept

A **polygon** is a closed, flat shape with straight sides.

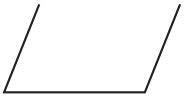


Discuss Is a polygon always a parallelogram? Why or why not?

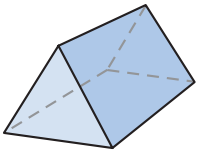
Example 1

Explain why these shapes are *not* polygons.

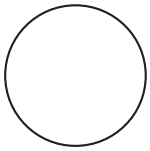
a.



b.



c.



a. The shape is not closed.

b. The shape is not flat.

c. The shape is curved.

In example 1, the figure in part **c** is a special curved figure we may know called a **circle.** A circle is a flat, closed shape, but it does not have straight sides. It is not a polygon.

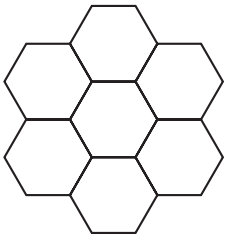
Polygons are named by their number of sides.

Polygons

Name	Example	Number of sides
Triangle		3
Quadrilateral		4
Pentagon		5
Hexagon		6
Octagon		8

Example 2

Kathleen arranged pattern blocks to make the design. What is the shape of each pattern block in the design?



Each pattern block in the design has 6 sides. A 6-sided polygon is a **hexagon.**

Example 3

a. Mrs. Lopez saw this sign and stopped at the intersection. What is the shape of the sign?

b. If each side of the stop sign is 12 inches long, what is the perimeter of the stop sign?

a. The sign has 8 sides. An 8-sided polygon is an **octagon.**

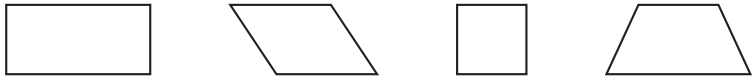
b. We add eight 12-inch sides or we multiply 12 inches by 8.

$$8 \times 12 \text{ in.} = 96 \text{ in.}$$

The perimeter of the stop sign is **96 inches.**

Example 4

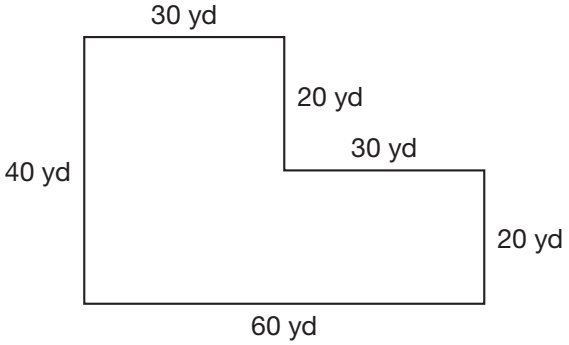
These four shapes are all what type of polygon?



Each polygon has 4 sides. Any polygon with 4 sides is a **quadrilateral.**

Example 5

Simon ran the perimeter of the playground once. How far did he run?



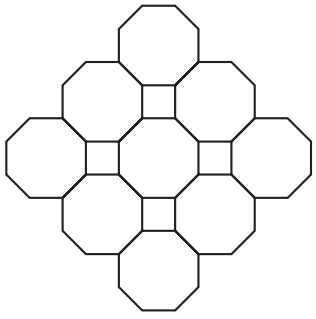
We add the length of each side to find the total distance around the playground.

$$60 \text{ yd} + 20 \text{ yd} + 30 \text{ yd} + 20 \text{ yd} + 30 \text{ yd} + 40 \text{ yd} = 200 \text{ yd}$$

Simon ran **200 yards.**

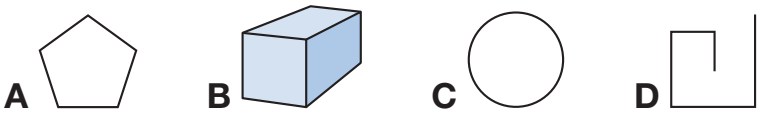
Lesson Practice

a. Miguel arranged two kinds of polygons to make this pattern. Name the two types of polygons.

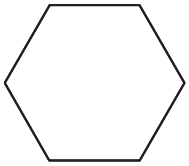


b. Draw a 3-sided polygon. What is the name for a polygon with 3 sides?

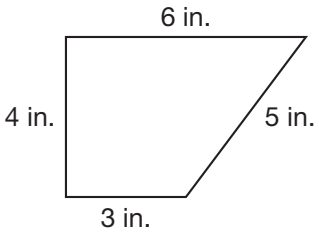
c. **Multiple Choice** Which of these figures is a polygon?



d. Each side of the hexagon is 12 in. What is its perimeter?



e. What is the perimeter of the quadrilateral?



Written Practice

1. *(18)* Paul finished two tile jobs. For the first job, he was paid $400. For the second job, he was paid $535. How much was he paid for both jobs?

2. *(39)* How much more was Paul paid for the second job in problem **1** than for the first job?

3. *(30)* **Estimate** Madison pays $590 each month for rent and $285 for her car. Estimate the total Madison pays for rent and for her car each month.

4. *(28, 39)* Jenny was born in 1998. How old will she be on her birthday in 2008?

5. *(25, 40)* Gabe bought a postcard and gave the clerk a dollar. He got back two quarters, two dimes, and three pennies.

a. How much money did Gabe get back?

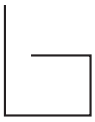
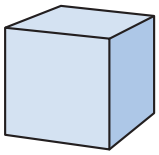
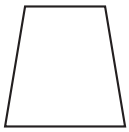
b. How much did the postcard cost?

6. *(27)* Arrange these numbers in order from least to greatest.

263 326 362 236

7. **Multiple Choice** Which of these figures is a polygon?

(67)

A  **B**  **C**  **D** 

8. **a.** What fraction of an hour is 15 minutes?

(5)

b. How many minutes is $\frac{3}{4}$ of an hour?

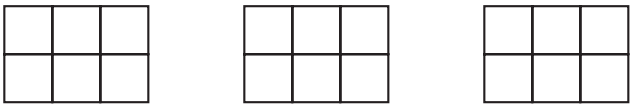
9. **a.** What is the numerator of $\frac{3}{4}$?

(41)

b. What is the denominator of $\frac{3}{4}$?

10. The picture below shows three equal groups of tiles. Write a multiplication fact that shows the total number of tiles.

(54, 60)



11. **Multiple Choice** Which number equals 3,000 + 400 + 5?

(32)

A 3,450 **B** 3,405 **C** 3,045 **D** 30,405

12. **Conclude** What are the next three numbers in this sequence?

(2, 64)

9, 18, 27, 36, 45, _____, _____, _____, …

13. Which multiplication fact is shown by this array?

(57)

xxxxxxx
xxxxxxx
xxxxxxx
xxxxxxx

14. 32¢ + 58¢ + 25¢

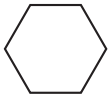
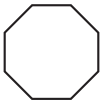
(22, 24)

15. $360 − $296

(23)

16. **Multiple Choice** Which polygon is next in this sequence?

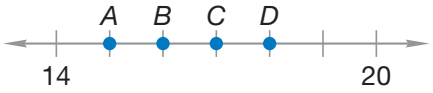
(2, 67)

A  **B**  **C**  **D** 

17. *(54, 55)* Show how to write this addition as multiplication, and then find the total.

$$8 + 8 + 8 + 8 + 8 + 8 + 8$$

18. *(33)* Which point best represents 16 on the number line?

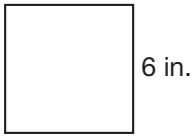


19. *(35)* Use your inch ruler to find the length of this paper clip to the nearest quarter inch.

20. *(58, 62)* A square tile has sides 6 inches long.

a. What is the perimeter of the tile?

b. What is the area of the tile?



Early Finishers

Real-World Connection

Four friends ran a race. Tony ran faster than Bill. Bill ran faster than CJ. Ryan ran faster than Tony. Who won the race? Who came in last? Draw a picture to show how you got your answer.

LESSON 68

• Congruent Shapes

Power Up

facts

Power Up 68

jump start

Count up by 4s from 0 to 40.
Count up by 8s from 0 to 80.

Write two multiplication facts using the numbers 8, 5, and 40.

Write the greatest 3-digit number that uses each of the digits 7, 5, and 8. What is the value of the digit in the ones place?

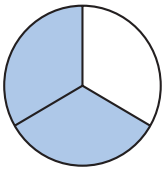
mental math

a. **Money:** $2.37 + $1.00

b. **Calendar:** How many days are in 10 weeks?

c. **Number Sense:** 700 + 700

d. **Fractions:** What fraction of the circle is shaded?



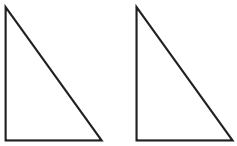
problem solving

The DVDs were priced at $9.99 each. At this price, how much would 2 DVDs cost? Explain how you found your answer.

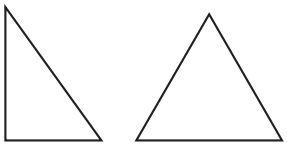
New Concept

If figures are the same size and shape, we say they are **congruent.**

Congruent Triangles



Not Congruent Triangles

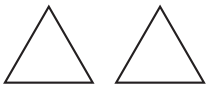


Discuss Two squares have the same perimeter. Will the two squares be congruent? Why or why not?

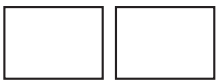
Example 1

Which pair of figures is not congruent?

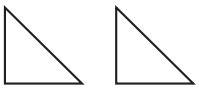
A



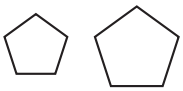
B



C

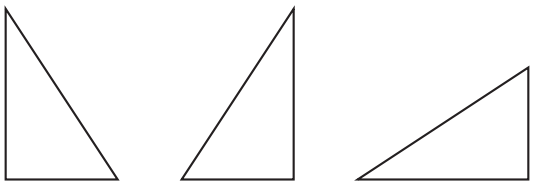


D



The figures in **A, B,** and **C** are congruent. The figures in **D** are not congruent because they are not the same size.

If congruent figures are turned or flipped, they are still congruent. These three triangles are congruent.



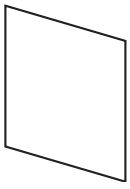
Example 2

Which parallelogram below is not congruent to this parallelogram?

A

B

C



D

Recall that a parallelogram is a four-sided, flat shape that has two pairs of parallel sides. The parallelograms in A, B, and D are congruent to the figure in example 2 because they are all the same size and the same shape. Choice **C** is not congruent because it is a different size.

Congruent Shapes

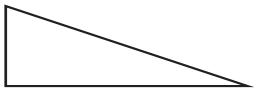
Look around the room for two shapes or objects that are congruent. Name the shapes or objects on your paper. Sketch both of them.

Lesson Practice

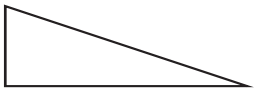
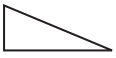
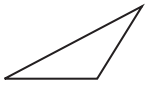
a. What two words complete the definition?

Congruent figures are the same _____ *and* _____.

b. Draw a triangle that is congruent to this triangle.



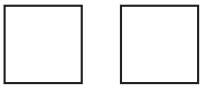
c. **Multiple Choice** Which triangle below is congruent to the triangle in problem **b?**

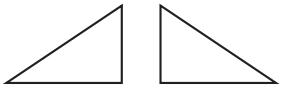
A  **B**  **C**  **D** 

d. **Multiple Choice** Which pair of figures is *not* congruent?

A 

B 

C 

D 

Written Practice

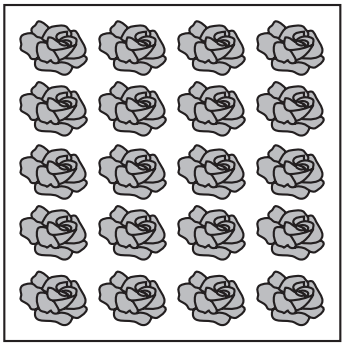
Distributed and Integrated

1. (39) Mary wanted to buy a new rose bush. The red one cost $8.49. The yellow one cost $7.89. The red one cost how much more than the yellow one?

2. (18, 22) Mary decided to buy the yellow rose bush for $7.89. Tax was 55¢. What was the total price including tax?

3. *(28, 25)* Mary gave the clerk $9.00 to pay for the rose bush in problem **2.** What coins did she probably get back in change?

Mary planted roses in her square rose garden. Look at the picture to help you answer problems **4–6.**



7 yd

4. *(58)* What is the perimeter of the garden?

5. *(62)* What is the area of the garden?

6. *(57)* The array of rose bushes in the garden represents what multiplication fact?

7. *(44)* The table below shows the numbers and colors of roses in Mary's garden.

Red	Pink	Yellow	White	Peach
6	5	3	2	4

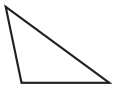
What fraction of the roses in the garden are yellow?

8. *(49)* Compare the fraction of roses that are red to the fraction that are pink.

9. *(38)* Mary waters the roses for 20 minutes in the morning. The clock shows when she stopped watering. Write the time in digital form.

10. *(67)* **Multiple Choice** Which shape below is *not* a polygon?

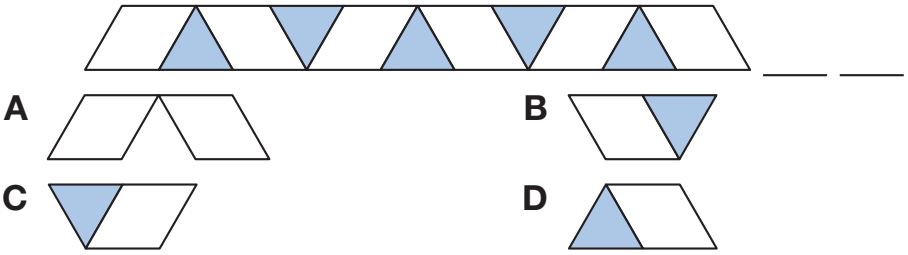
A 

B 

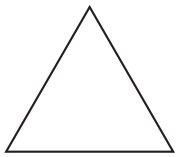
C 

D 

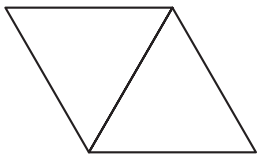
11. (2, 67) **Multiple Choice** Tran used tiles shaped like triangles and parallelograms to make this border. What are the next two tiles in the pattern?



12. (67) What is another name for this three-sided polygon?



13. (66) **Conclude** These two triangles fit together to make what four-sided shape?



14. (46) Use digits and symbols to write a fraction equal to 1 with a denominator of 8. Then write the fraction using words.

15. (56, 59) Find each product.

a. 5×0 **b.** 5×7 **c.** 7×10

16. (54, 61) Write the addition below as multiplication, and then find the total.

$$7 + 7 + 7 + 7 + 7 + 7 + 7$$

17. (24) $78 + 78 + 78$

18. (28) $500 - 234$

19. (35, 52) **Represent** Draw a rectangle that is $1\frac{1}{2}$ inches long and $\frac{3}{4}$ inches wide.

20. (42) **Represent** Divide the rectangle you drew in problem **19** into three equal parts and shade $\frac{2}{3}$ of the rectangle.

LESSON 69

• Triangles

Power Up

facts

Power Up 69

jump start

Count up by 12s from 0 to 120.

Count up by 10s from 6 to 96.

Write "fourteen thousand, three hundred eighty" using digits. What digit is in the thousands place?

Label the number line by 100s from 0 to 1,000.

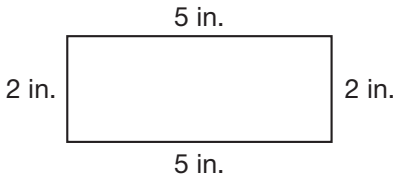
mental math

a. **Money:** $1.30 + $0.40

b. **Time:** A **decade** is 10 years. How many years are in 10 decades?

c. **Number Sense:** 55 + 7

d. **Measurement:** What is the perimeter of the rectangle?



problem solving

Francesca and Sophie are going to the theater to see a movie. The movie is 1 hour 59 minutes long. The previews before the movie last 15 minutes. What is the total length of the previews and the movie? Explain how you found your answer.

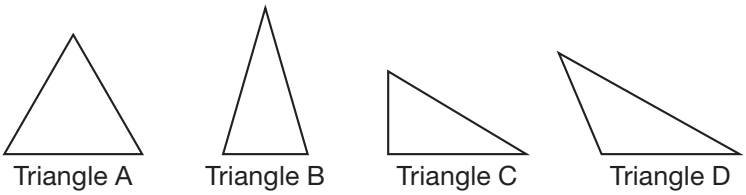
New Concept

A **triangle** is a three-sided polygon.

Examples of triangles are shown in example 1.

Example 1

Refer to the triangles to answer the questions below.



a. Which triangle has a right angle?

b. Which triangle has three equal sides?

c. Which triangle has an obtuse angle?

d. Which triangle has just two equal sides?

a. Triangle C has a right angle.

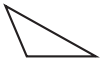
b. Triangle A has three equal sides.

c. Triangle D has an obtuse angle.

d. Triangle B has just two equal sides.

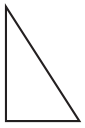
The table below shows some special kinds of triangles.

Types of Triangles

Name	Example	Characteristic
Equilateral		three equal sides
Isosceles		two equal sides
Right		one right angle
Scalene		all sides different lengths

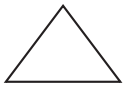
Example 2

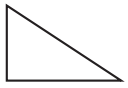
Which triangle below is *not* congruent to the triangle at right?



A 

B 

C 

D 

The triangle in example 2 is a right triangle with sides that are three different lengths. The triangles in A, B, and D are congruent to this triangle because they are all the same size and the same shape. The triangle in **C** is not congruent because it is a different shape.

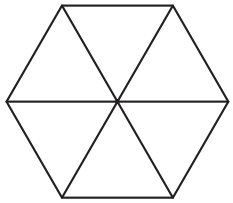
Activity

Make Equilateral and Right Triangles

Follow the directions on **Lesson Activity 24** to make triangles.

Lesson Practice

a. Kristin fit triangular pattern blocks together to make a hexagon. How many triangles did she use?



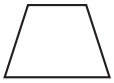
b. What type of triangles did Kristin use to make the hexagon?

c. Draw a right angle by tracing the side and bottom of a square tile. Then make a right triangle by drawing one more side.

d. **Multiple Choice** Which shape below is a triangle?

A 

B 

C 

D 

Written Practice

Distributed and Integrated

1. (60) **Multiple Choice** Astra works 7 hours each day. How many hours does she work in 5 days?

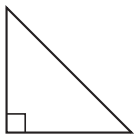
A 28 hrs **B** 35 hrs **C** 42 hrs **D** 56 hrs

2. (48) Write the fractions or mixed numbers shown on each number line.

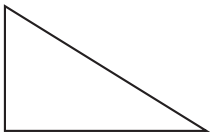
a. 

b. 

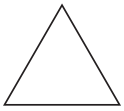
3. (68) **Multiple Choice** Donnell has a piece of tile in the shape of the figure at right. He wants to find a congruent shape among the scraps of tile. Which piece is congruent?



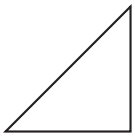
A



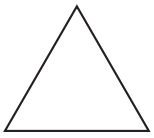
B



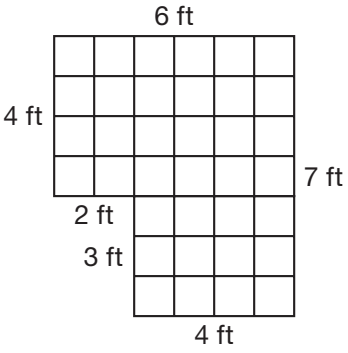
C



D



Andersen laid 1-ft-square tiles on the floor of a room with this shape. Look at the picture to help you answer problems **4–6.**



4. (58) What is the perimeter of the room?

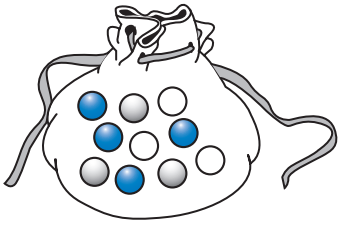
5. (63) **a.** How many tiles did Andersen use?

b. **Explain** What is the area of the room? Explain how you found the area.

6. (67) **a.** The shape of the floor has how many sides?

b. What is the name of a polygon with this number of sides?

There are blue marbles, white marbles, and gray marbles in a bag. Look at the picture and table to help you answer problems **7–10.**



7. (44) What fraction of the marbles are gray?

8. (49) Compare the fraction of the marbles that are white to the fraction that are blue.

9. (50) Which color is most likely to be picked from the bag?

10. (50) Which two colors are equally likely to be picked from the bag?

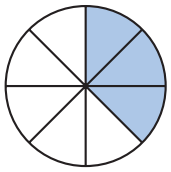
Marbles in Bag

Color	Number
Blue	4
White	3
Gray	3

11. (32) The distance around the Earth is about 25,000 miles. Use words to write that number.

12. What is the place value of the 2 in 25,000? *(32)*

13. What fraction of the circle at right is shaded? *(41)*



14. **Represent** Draw a circle and shade $\frac{7}{8}$ of it. *(42)*

15. Write a fraction equal to 1 that has a denominator of 9. *(46)*

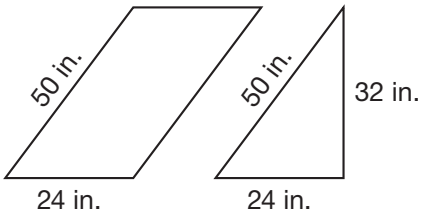
16. Find each product. *(61)*

a. 6×6 **b.** 7×7 **c.** 8×8

17. Find each product. *(64)*

a. 9×5 **b.** 9×10 **c.** 9×8

Look at the parallelogram and triangle to help you answer problems **18–20.**



18. What is the perimeter of the parallelogram? *(58, 66)*

19. What is the perimeter of the triangle? *(58, 69)*

20. The perimeter of the parallelogram is how much greater than the perimeter of the triangle? *(39)*

Early Finishers

Real-World Connection

Jamal made a spinner divided into four equal sections with a different number written in each section. He wrote the numbers 25, 15, 30, and 10 on the spinner. Draw a picture of the spinner. Is the spinner more likely, less likely, or equally likely to stop on an even number?

LESSON 70

• Multiplication Facts: Memory Group

Power Up

facts

Power Up 70

jump start

Count down by 3s from 45 to 0.
Count down by 9s from 90 to 0.

Draw a rectangle that is $1\frac{1}{2}$ inches long and 1 inch wide.

Use these clues to find the secret number. Write the secret number on your worksheet.

- two-digit number
- perfect square
- product of the two digits is 6

mental math

a **Number Sense:** 800 + 500

b. **Number Sense:** 45 − 9

c. **Time:** 120 minutes − 60 minutes

d. **Estimation:** Round the value of these bills to the nearest ten dollars.

problem solving

Draw the next two shapes in this pattern.

B ʁ B m B ʁ, ___, ___, . . .

New Concept

The products of 20 facts we will practice in this lesson are marked in blue on the multiplication table. If we learn 10 of these facts, we will know all 20 facts.

For example, consider 8×7 and 7×8. If we memorize the product of 8×7, then we also know the product of 7×8.

The 8s column and the 7s row meet at 56.
The 7s column and the 8s row meet at 56.

	0	1	2	3	4	5	6	7	8	9	10	11	12
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

Represent Draw an array showing 8×7 and an array showing 7×8.

Flash Cards

Cut apart **Lesson Activity 25.** On the back of each flash card, write the product shown in the table. Practice the flash cards with a partner. Then clip the cards together and save them for practice.

Lesson Practice

Find each product.

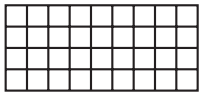
a. 3×4 **b.** 4×6 **c.** 6×7 **d.** 3×7 **e.** 6×8

f. 4×8 **g.** 3×6 **h.** 4×7 **i.** 7×8 **j.** 3×8

Written Practice

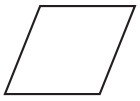
Distributed and Integrated

1. (53, 54) What multiplication fact is represented by this rectangular pattern of tiles?



2. (55) One foot is 12 inches. Glenna jumped 8 feet. Use a multiplication table to find how many inches Glenna jumped.

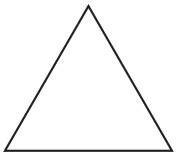
3. (66, 67) The tile factory makes tile in special shapes. Name each shape shown below.

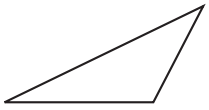
a. 

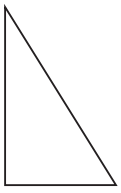
b. 

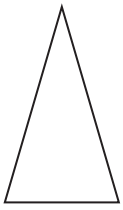
c. 

4. (65, 69) **Multiple Choice** Which triangle below has a right angle?

A 

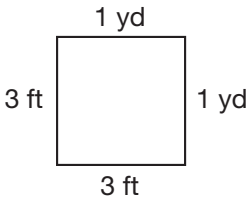
B 

C 

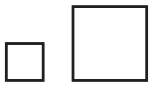
D 

5. (34, 63) **a.** A yard is how many feet?

b. A square yard is how many square feet?



6. (68) **Multiple Choice** Which pair of figures are congruent?

A 

B 

C 

D 

7. (15) There were 89 students eating lunch in the cafeteria. Round 89 to the nearest ten.

8. (33) **Analyze** Which point best represents 662?

9. (15) Round 662 to the nearest hundred.

10. (40) Find the missing number: $831 - \square = 294$.

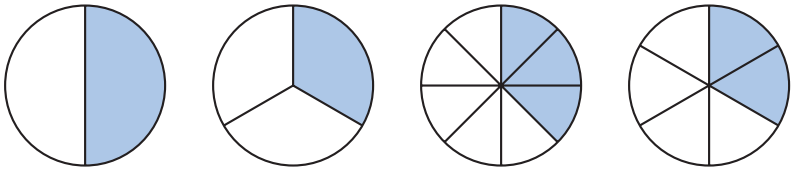
11. (27, 32) **Analyze** Will measured the distance he could ride his bike in 60 seconds. He recorded the results in a table. Write the distances in order from least to greatest.

Distance in 60 Seconds

Attempt	Feet
1st try	1,312
2nd try	1,320
3rd try	1,303
4th try	1,332

12. (38) When dinner was over, Misha looked at the clock. Write the time in digital form.

13. (47) **Conclude** Which two fractions below are equivalent?



$\frac{1}{2}$ $\frac{1}{3}$ $\frac{3}{8}$ $\frac{2}{6}$

14. (49) Compare: $\frac{1}{2} \bigcirc \frac{3}{8}$

15. (70) Find each product.

a. 3×4 **b.** 3×6 **c.** 3×7

16. (70) Find each product.

a. 6×4 **b.** 6×7 **c.** 6×8

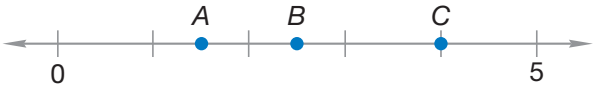
17. (70) Find each product.

a. 7×4 **b.** 7×8 **c.** 3×8

18. $1.98 + $3.65 (22)

19. $603 − $476 (23)

20. Which point on the number line best represents $2\frac{1}{2}$? (48)



Early Finishers

Real-World Connection

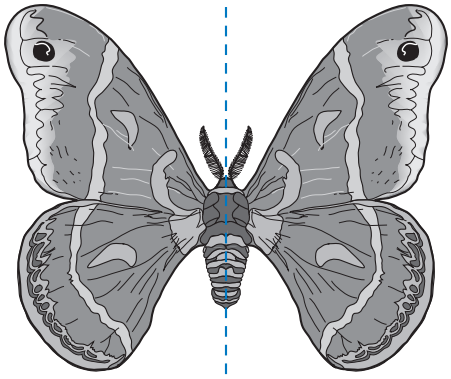
Jackie bought 4 model tricycles and 7 model cars from Stan's Hobby Shop. Each model comes with a spare tire. How many tires came with the models altogether? You may draw pictures to help you find the answer.

Focus on

• Symmetry, Part 1

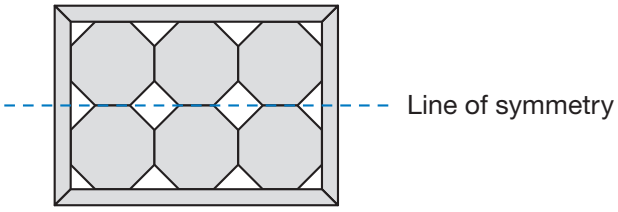
In nature we often see a balance in the appearance of living things. For example, when a butterfly folds up its wings, the two sides match. We call this kind of balance **symmetry.**

The line in the middle of this image of a butterfly is called the **line of symmetry.** The line of symmetry divides the butterfly into two equal halves. One half is a mirror image of the other half. If we hold a mirror along the line and look at the reflection, we see the complete image of the butterfly.



Visit www.SaxonMath.com/Int3Activities for an online activity.

Miguel makes a pattern with tiles, as shown.



The tile pattern below the line of symmetry is a mirror image of the pattern above the line of symmetry.

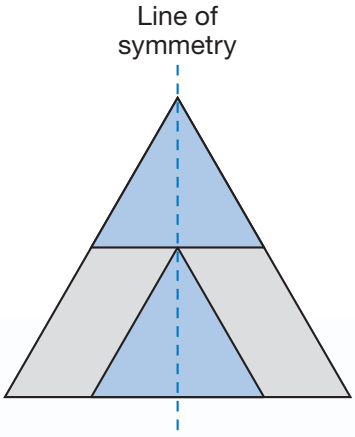
Discuss Find another line of symmetry in the pattern above. Explain where the line of symmetry is.

Activity

Symmetry, Part 1

Materials: **Lesson Activity 26,** color tiles or pattern blocks

In the activity, you will make a symmetrical pattern using color tiles or pattern blocks. Place the tiles or blocks on both sides of the line of symmetry on **Lesson Activity 26.** Make sure both sides match. Then trace the pattern on paper. You may color the pattern so that the coloring is symmetrical. Here is an example.



Investigate Further

a. Cut pictures from newspapers and magazines of objects that have symmetry. Draw each picture's line of symmetry and paste the pictures on construction paper or cardboard to be displayed in the classroom.