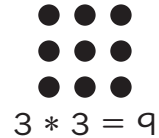# Exploring Square Numbers

A **square number** is a number that can be written as the product of a number multiplied by itself. For example, the square number 9 can be written as 3 * 3.
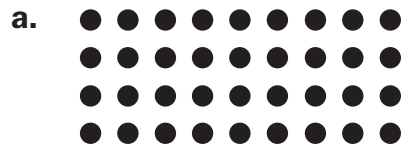
$$3 * 3 = 9$$

(1) Fill in the missing factors and square numbers.

Factors	Square Number
	4
3 * 3	9
4 * 4	
	25
	36

(2) What pattern(s) do you see in the factors? In the products?

_____

_____

(3) What other pattern(s) do you see in the table?

_____

_____

(4) Write an equation to describe each array.

a.

b.

Equation: _____   Equation: _____

(5) a. Which of the arrays above shows a square number? _____

b. Explain. _____

Practice

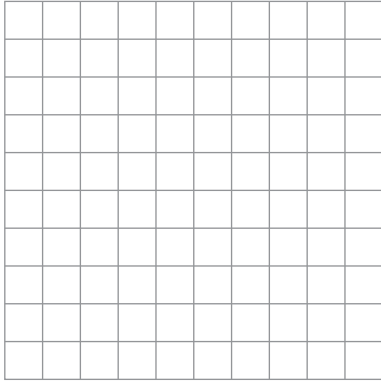(6) 32, 45, 58, _____, _____, _____   Rule: _____

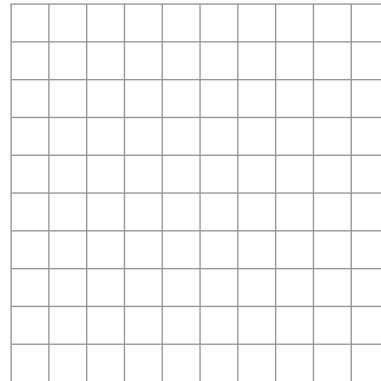(7) _____, _____, _____, 89, 115, 141   Rule: _____

53

Area of a Rectangle

① Draw a rectangle that has length of 9 units and width of 4 units.
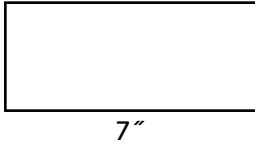
② Draw a rectangle that has a length of 7 units and a width of 8 units.

Equation: _____

Area = _____ square units

Equation: _____

Area = _____ square units

Use the formula $A = l * w$ to find the area of each rectangle.

③ 8′

6′

Equation: _____

Area = _____ square feet

④ 3″

7″

Equation: _____

Area = _____ square inches

⑤ Riley's dining room tabletop is 9 feet long and 6 feet wide. What is the area of the tabletop?

Equation: _____

Area = _____ square feet

Practice

⑥ $368 - 59 =$ _____

⑦ $194 - 147 =$ _____

⑧ _____ $= 1,729 - 623$

57

Working with Factor Pairs

① Write equations to help you find all the factor pairs of each number below. Use dot arrays, if needed.

Number	Equations with Two Factors	Factor Pairs
6	$1 * 6 = 6$ $2 * 3 = 6$ $3 * 2 = 6$ $6 * 1 = 6$	1 and 6 2 and 3
9		
10		
17		
40		

Practice

② $356 + 433 =$ _____ ③ _____ $= 2{,}167 + 696$

④ _____ $= 4{,}578 - 2{,}232$ ⑤ $3{,}271 - 1{,}089 =$ _____

59

Finding Multiples

SRB 55

(1) List the first 5 multiples of 4. _____

(2) List the first 10 multiples of 2. _____

(3)   **a.**   List the first 10 multiples of 3. _____

      b.   List the first 10 multiples of 5. _____

      c.   List the multiples of 3 that are also multiples of 5. _____

(4) Is 28 a multiple of 7? _____ Explain. _____

_____

(5) Is 35 a multiple of 6? _____ Explain. _____

_____

(6)   **a.**   List the factors of 15. List the multiples through 15 of each factor.

Factors of 15	Multiples of the Factors (of 15)

      b.   Is 15 a multiple of each of its factors? _____ Explain. _____

_____

Practice

(7) 24, _____, 48, _____, 72, _____   Rule: _____

(8) _____, 108, 162, _____, 270, _____   Rule: _____

(9) 86, _____, 52, _____, 18, _____   Rule: _____

(10) 425, _____, 339, _____, 253, _____   Rule: _____

61

Prime and Composite Numbers

SRB
53-54

A **prime number** is a whole number that has exactly two different factors—1 and the number itself. A **composite number** is a whole number that has more than two different factors.

For each number:

- List all of its factors.

- Write whether the number is prime or composite.

- Circle all of the factors that are prime numbers.

	Number	Factors	Prime or Composite?
①	11		
②	19		
③	24		
④	29		
⑤	36		
⑥	49		
⑦	50		
⑧	70		
⑨	100		

Practice

Solve.

⑩ $841 + 527 =$ _____

⑪ _____ $= 3,263 + 5,059$

⑫ $7,461 + 2,398 =$ _____

⑬ _____ $= 4,172 - 3,236$

⑭ $8,158 = 5,071 +$ _____

⑮ $3,742 - 3,349 =$ _____

Using Multiplication

Home Market sells 3 grapefruits for $2.

(1) Darius spent $6 on grapefruits. How many did he buy? Use words, numbers, or diagrams to show your reasoning.

_____ grapefruits

(2) Jana bought 15 grapefruits. How much did she spend? Use words, numbers, or diagrams to show your reasoning.

_____ dollars

(3) On the back of this page, write a multiplication number story about buying grapefruits at Home Market. Show how to solve your number story.

Practice

Write these numbers using words.

(4) 12,309 _____

(5) 30,041 _____

(6) 600,780 _____

(7) 9,090,506 _____
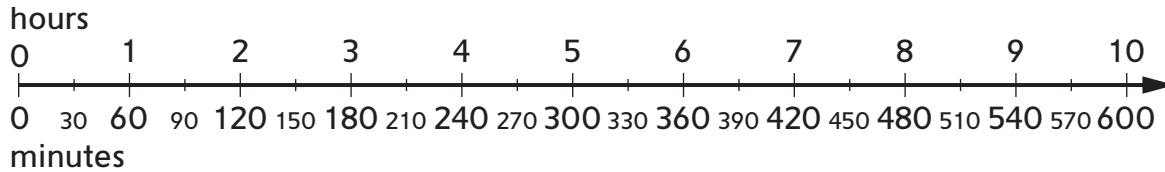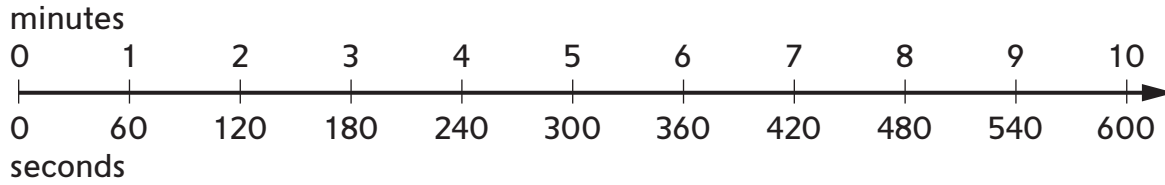
Converting Units of Time

Use the measurement scales to fill in the tables and answer the questions.

SRB
198-199

minutes
0   1   2   3   4   5   6   7   8   9   10
0   60   120 180 240 300 360 420 480 540 600
seconds

hours
0   1   2   3   4   5   6   7   8   9   10
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600
minutes

(1)

Hours	Minutes
1	60
4	
8	
11	

(2)

Minutes	Seconds
1	60
5	
10	
20	

(3) Zac worked on his spelling for 9 minutes last night and 8 minutes this afternoon. How many seconds did he work? Answer: _____ seconds

(4) Eton's baby sister took a nap for 2 hours and 22 minutes yesterday and 1 hour and 35 minutes today. How many more minutes did she sleep yesterday than today? Answer: _____ minutes

Try This

(5) How many seconds did Eton's baby sister sleep all together? Answer: _____ seconds

Practice

(6) 945 + 1,055 = _____

(7) 2,953 + 4,471 = _____

(8) 4,552 + 4,548 = _____

(9) 3,649 + 3,649 = _____

Multiplicative Comparisons

Family Note In this lesson students used comparison statements and equations to represent situations in which one quantity is a number of times as much as another quantity. For example: José saved $5 over the summer. His sister saved 3 times as much. How much money did José's sister save? In this number story students compare the amount of money José saved to the amount his sister saved. Students write the equation $3 * 5 = 15$ to represent this comparison and solve the problem: José's sister saved $15. Because these comparison statements and equations involve multiplication, they are called multiplicative comparisons.

Complete the problems below. Write an equation with a letter for the unknown and solve.

SRB 56-57

1. What number is 7 times as much as 9?

   Equation with unknown:

   _____

   Answer: _____

2. What number is 5 times as much as 6?

   Equation with unknown:

   _____

   Answer: _____

3. 32 is 4 times as much as what number?

   a. Equation with unknown: _____

   b. Answer: _____

4. Write an equation to represent this situation and solve.

   Ameer worked 3 times as many hours as Simi each week during the summer. If Simi worked 10 hours each week, how many hours did Ameer work each week?

   a. Equation with unknown: _____

   b. Answer: _____ hours

Practice

5. $7,482 - 7,083 =$ _____

6. $7,702 - 3,581 =$ _____

7. $5,201 - 3,052 =$ _____

8. $8,002 - 5,403 =$ _____

Solving Multiplicative Comparison Number Stories

Make a diagram or drawing and write an equation to represent the situation. Then find the answer.

SRB
56-57

(1) Judith collected 9 marbles. Swen has 6 times as many. How many marbles does Swen have?

Diagram or drawing:

Equation with unknown: _____

Answer: _____ marbles

(2) Sol ran 4 times as many minutes as Jerry. Jerry ran 12 minutes. How many minutes did Sol run?

Diagram or drawing:

Equation with unknown: _____

Answer: _____ minutes

Insert quantities into the number story. Make a diagram and write an equation to represent the story.

(3) Lola picked _____ apples. Eilene picked _____ apples. Eilene picked _____ times as many apples as Lola.

Diagram or drawing:

Equation with unknown: _____

Answer: _____ apples

Practice
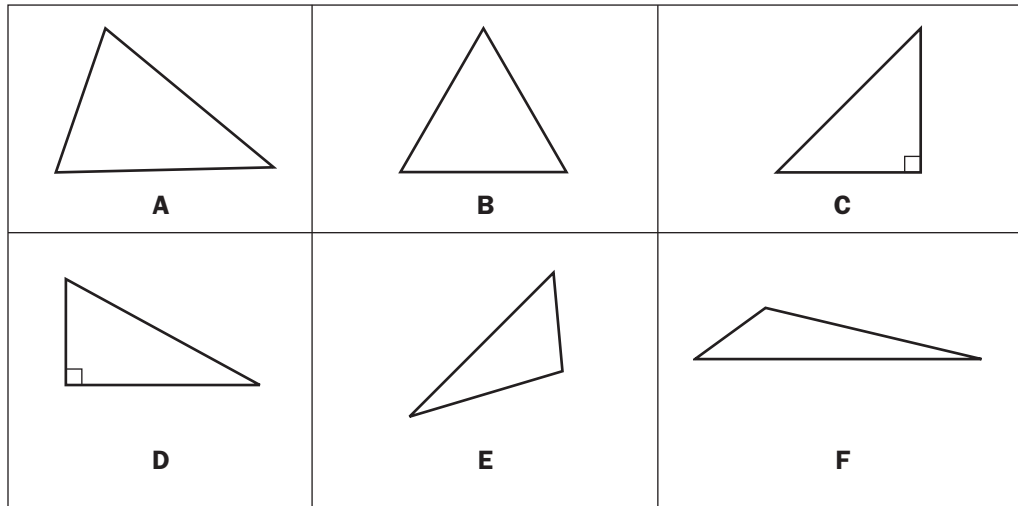Write these numbers in expanded form.

(4) 3,830 _____

(5) 56,037 _____

(6) 800,700 _____

(7) 716,305 _____

Identifying Triangles

A	B	C
D	E	F

SRB
229, 233

Write the letter or letters that match each statement.

(1) Has perpendicular line segments _____

(2) Has an obtuse angle _____

(3) Has right angles _____

(4) Has acute angles _____

(5) Has more than one kind of angle _____

(6) Has only one kind of angle _____

(7) Does NOT have any right angles _____

(8) Is a right triangle _____

Practice

(9) List all the factors of 12. _____

(10) Name the next 4 multiples of 7.   35, _____, _____, _____, _____

79

Drawing Quadrilaterals

Home Link 2-11

NAME   DATE   TIME

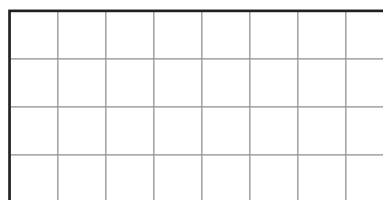**(1)** A parallelogram is a quadrilateral that has 2 pairs of parallel sides. Draw a parallelogram.
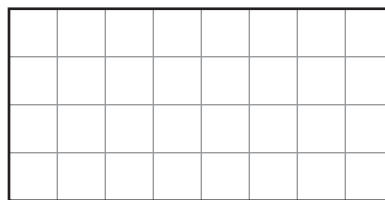
(2) Answer each question, drawing pictures on the back of this page to help you.

a. Can a parallelogram have right angles? _____ Explain.

_____

_____

b. Could a quadrilateral have 4 obtuse angles? _____ Explain.
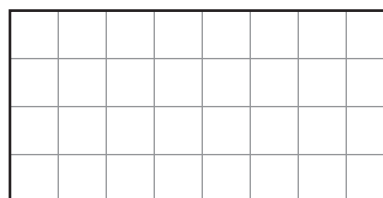
_____

_____

c. Name a quadrilateral that has at least 1 pair of parallel sides.

_____

(3) Draw a quadrilateral that has at least 1 right angle.

(4) Draw a quadrilateral that has 2 separate pairs of equal length sides but is NOT a parallelogram.

This is called a _____.
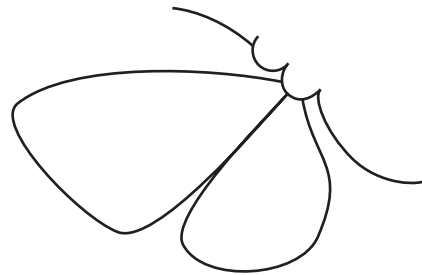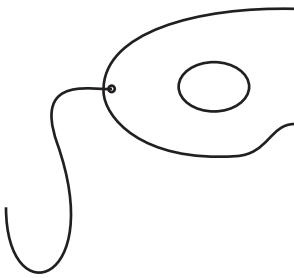
Practice

(5) 5 * 30 = _____
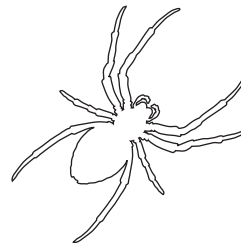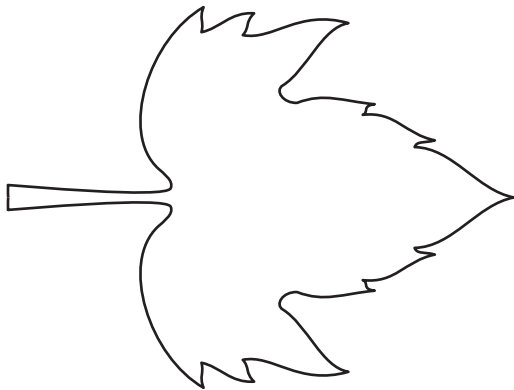
(6) _____ = 40 * 3

(7) _____ = 80 * 6

(8) 6 * 70 = _____

Drawing Lines of Symmetry

① Draw the other half of each picture to make it symmetrical.
Use a straightedge to form the line of symmetry.

② Draw a line of symmetry for each figure.

③ List four items in your home that are symmetric. Pick one item and draw it below, including at least one line of symmetry.

Item: _____   Item: _____   Drawing:

Item: _____   Item: _____

Practice

④ _____ = 2,767 + 3,254   ⑤ 193 + 6,978 = _____

⑥ 7,652 − 5,388 = _____   ⑦ _____ = 4,273 − 1,678

Identifying Patterns

(1) Complete.

in
↓

Rule

* 9

↓
out

in	out
2	18
	27
4	
	45
6	

What patterns do you see?

_____

_____

_____

_____

(2) Complete.

in
↓

Rule

+ 11

↓
out

in	out
11	22
	33
33	
	55
55	

What patterns do you see?

_____

_____

_____

_____

(3) Study the pattern.   O   OO   OO   OOO   _____
                                  O   OO   OOO
              1   2   3   4   5
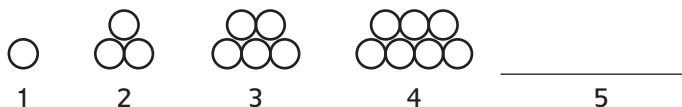
a. Draw the next step in the pattern. What patterns do you notice?

_____

_____

b. How many circles will be in the 6th step? _____ In the 10th step? _____

c. How did you figure out how many circles will be in the 10th step?

_____

_____

Practice

(4) $800,000 + 90 =$ _____

(5) $200,000 + 50,000 + 4 =$ _____