Vocabulary

acute triangle A triangle with three acute angles

line segment A part of a line that includes two points, called endpoints, and all the points between them

obtuse triangle A triangle with one obtuse angle

ray A part of a line, with one endpoint, that is straight and continues in one direction

right triangle A triangle with one right angle and two acute angles

Dear Family,

Throughout the next few weeks, our math class will be studying two-dimensional figures. The students will use definitions to identify and describe characteristics of these figures.

You can expect to see homework that includes identifying types of triangles and quadrilaterals.

Here is a sample of how your child will be taught to classify a triangle by its angles.

🔑 MODEL   Classify a triangle by the sizes of its angles.

Classify triangle *KLM*.

STEP 1

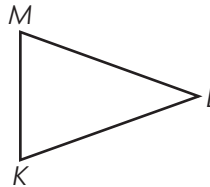Determine how many angles are acute.

∠*K* is __acute__.

∠*L* is __acute__.

∠*M* is __acute__.

STEP 2

Determine the correct classification.

A triangle with __3__ acute angles is

__acute__.

Tips

Angle sizes

Angles are classified by the size of the opening between the rays. A right angle forms a square corner. An acute angle is less than a right angle. An obtuse angle is greater than a right angle and less than a straight angle.

To classify angles in a figure, use the corner of an index card as a right angle and compare.

Activity

Help your child commit most of the classifications of triangles and quadrilaterals to memory. Together, you can make a series of flash cards with the classifications on one side of the card and definitions and/or sketches of examples on the other side of the card.

Name _____

Lines, Rays, and Angles

Draw and label an example of the figure.

1. obtuse ∠ABC
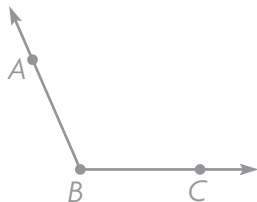
Think: An obtuse angle is greater than a right angle. The middle letter, B, names the vertex of the angle.

2. $\overrightarrow{GH}$

3. acute ∠JKL

4. $\overline{BC}$

Use the figure for 5–8.

5. Name a line segment.

_____

6. Name a right angle.

_____

7. Name an obtuse angle.
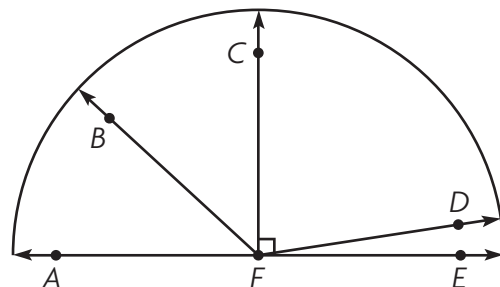
_____

8. Name a ray.

_____
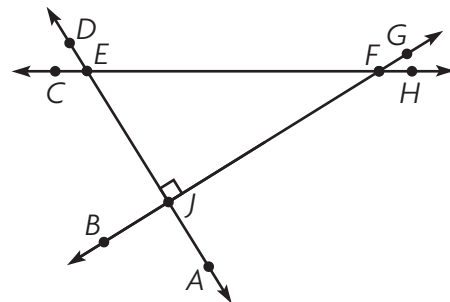
Problem Solving REAL WORLD

Use the figure at the right for 9–11.

9. Classify ∠AFD. _____

10. Classify ∠CFE. _____

11. Name two acute angles.

_____

Lesson Check

1. The hands of a clock show the time 12:25.

Which best describes the angle between the hands of the clock?

(A) acute   (C) obtuse

(B) right   (D) straight

2. Which of the following name two different figures?

(A) $\overline{AB}$ and $\overline{BA}$

(B) $\overrightarrow{AB}$ and $\overrightarrow{BA}$

(C) $\overrightarrow{AB}$ and $\overrightarrow{BA}$

(D) $\angle ABC$ and $\angle CBA$

Spiral Review

3. Jan's pencil is 8.5 cm long. Ted's pencil is longer. Which could be the length of Ted's pencil? **(Lesson 9.7)**

(A) 0.09 cm

(B) 0.8 cm

(C) 8.4 cm

(D) 9.0 cm

4. Kayla buys a shirt for $8.19. She pays with a $10 bill. How much change should she receive? **(Lesson 9.5)**

(A) $1.81

(B) $1.89

(C) $2.19

(D) $2.81

5. Sasha donated $\frac{9}{100}$ of her class's entire can collection for the food drive. Which decimal is equivalent to $\frac{9}{100}$? **(Lesson 9.2)**

(A) 9

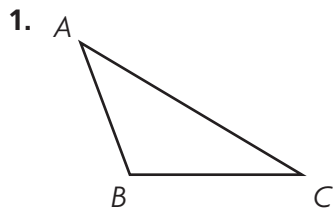(B) 0.99

(C) 0.9

(D) 0.09

6. Jose jumped $8\frac{1}{3}$ feet. This was $2\frac{2}{3}$ feet farther than Lila jumped. How far did Lila jump? **(Lesson 7.8)**

(A) $5\frac{1}{3}$ feet

(B) $5\frac{2}{3}$ feet
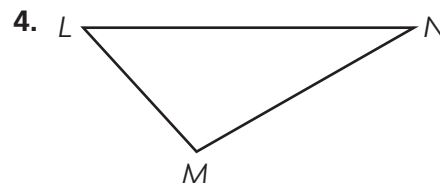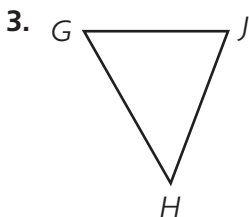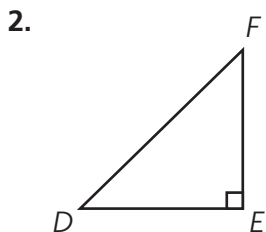
(C) $6\frac{1}{3}$ feet

(D) 11 feet

Name _____

Classify Triangles

Classify each triangle. Write *acute*, *right*, or *obtuse*.

1.

A

B   C

Think: Angles *A* and *C* are both acute.
       Angle *B* is obtuse.

___**obtuse**___

2.

F

D   E

3.

G   J

H

4.

L   N

M
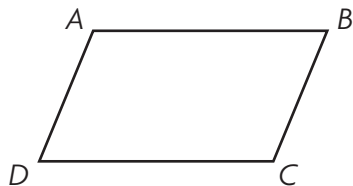
_____   _____   _____

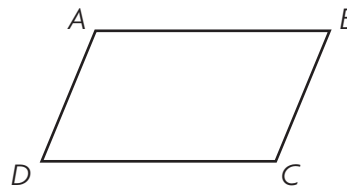# Problem Solving REAL WORLD

5. Use figure *ABCD* below. Draw a line segment from point *B* to point *D*. Name and classify the triangles formed.
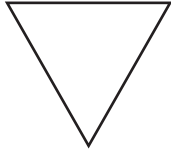
A   B

D   C

_____

_____

_____

6. Use figure *ABCD* below. Draw a line segment from point *A* to point *C*. Name and classify the triangles formed.

A   B

D   C

_____

_____

_____

Lesson Check

1. Stephen drew this triangle. How many obtuse angles does the triangle have?
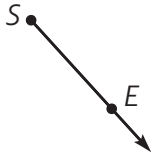
(A) 0   (C) 2

(B) 1   (D) 3

2. Joan was asked to draw a right triangle. How many right angles are in a right triangle?

(A) 0

(B) 1

(C) 2

(D) 3

Spiral Review

3. Oliver drew the figure below to show light traveling from the sun to Earth. Name the figure he drew. **(Lesson 10.1)**

(A) segment *SE*   (C) line *SE*

(B) ray *SE*   (D) ray *ES*

4. Armon added $\frac{1}{10}$ and $\frac{8}{100}$. Which is the correct sum? **(Lesson 9.6)**

(A) $\frac{18}{10}$

(B) $\frac{9}{10}$

(C) $\frac{9}{100}$

(D) $\frac{18}{100}$

5. Sam counted out loud by 6s. Jorge counted out loud by 8s. What are the first three numbers both students said? **(Lesson 5.4)**

(A) 8, 16, 24

(B) 14, 28, 42

(C) 24, 48, 72

(D) 48, 96, 144

6. A basketball team averaged 105 points per game. How many points did the team score in 6 games? **(Lesson 2.10)**

(A) 605 points

(B) 630 points

(C) 900 points

(D) 6,030 points

Name —————————————

Parallel Lines and Perpendicular Lines
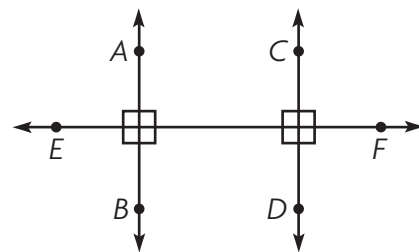
Use the figure for 1–3.

1. Name a pair of lines that appear to be perpendicular.

    Think: Perpendicular lines form right angles.
    $\overleftrightarrow{AB}$ and $\overleftrightarrow{EF}$ appear to form right angles.

    $\overleftrightarrow{AB}$ and $\overleftrightarrow{EF}$
    ————————————————

2. Name a pair of lines that appear to be parallel.

    ————————————————

3. Name another pair of lines that appear to be perpendicular.

    ————————————————

Draw and label the figure described.

4. $\overleftrightarrow{MN}$ and $\overleftrightarrow{PQ}$ intersecting at point R

5. $\overleftrightarrow{WX} \parallel \overleftrightarrow{YZ}$

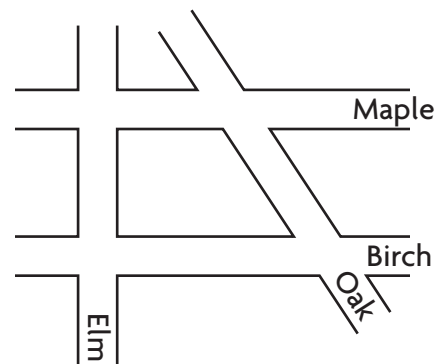6. $\overleftrightarrow{FH} \perp \overleftrightarrow{JK}$

Problem Solving REAL WORLD

Use the street map for 7–8.

7. Name two streets that intersect but do not appear to be perpendicular.

    ————————————————

    ————————————————

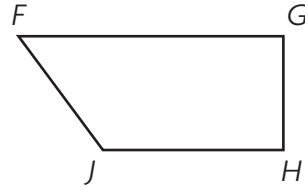8. Name two streets that appear to be parallel to each other.

    ————————————————

Lesson Check

1. Which capital letter appears to have perpendicular line segments?

   Ⓐ N
   Ⓑ O
   Ⓒ T
   Ⓓ V

2. In the figure, which pair of line segments appear to be parallel?

   Ⓐ $\overline{FG}$ and $\overline{GH}$
   Ⓑ $\overline{FJ}$ and $\overline{GH}$
   Ⓒ $\overline{FG}$ and $\overline{JH}$
   Ⓓ $\overline{JH}$ and $\overline{FJ}$

Spiral Review

3. Nolan drew a right triangle. How many acute angles did he draw? **(Lesson 10.2)**

   Ⓐ 0
   Ⓑ 1
   Ⓒ 2
   Ⓓ 3

4. Mike drank more than half the juice in his glass. What fraction of the juice could Mike have drunk? **(Lesson 6.6)**

   Ⓐ $\frac{1}{3}$
   Ⓑ $\frac{2}{5}$
   Ⓒ $\frac{3}{6}$
   Ⓓ $\frac{5}{8}$

5. A school principal ordered 1,000 pencils. He gave an equal number to each of 7 teachers until he had given out as many as possible. How many pencils were left? **(Lesson 4.11)**

   Ⓐ 2
   Ⓑ 4
   Ⓒ 6
   Ⓓ 142

6. A carton of juice contains 64 ounces. Ms. Wilson bought 6 cartons of juice. How many ounces of juice did she buy? **(Lesson 2.10)**
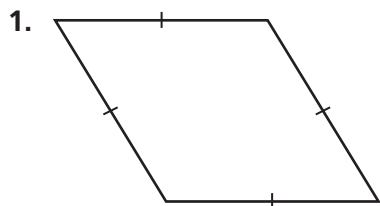
   Ⓐ 364 ounces
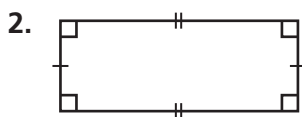   Ⓑ 370 ounces
   Ⓒ 384 ounces
   Ⓓ 402 ounces

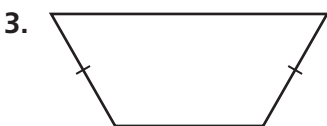Name _____

Classify Quadrilaterals

Classify each figure as many ways as possible. Write
quadrilateral, trapezoid, parallelogram, rhombus, rectangle, or square.
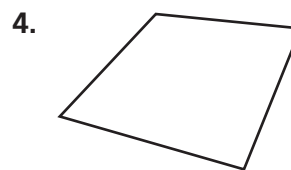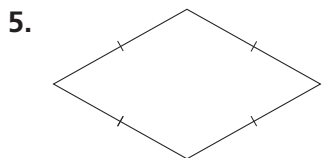
1.

Think: 2 pairs of parallel sides
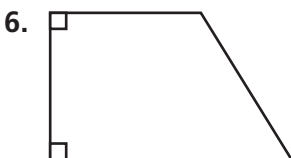4 sides of equal length
0 right angles

quadrilateral, parallelogram,
rhombus

2.

_____

_____

_____

3.

_____

_____

_____

4.

_____

_____

_____

5.

_____

_____

_____

6.

_____

_____

_____

7.

_____

_____

_____

Problem Solving REAL WORLD
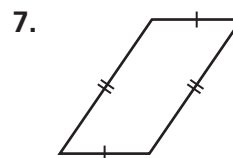
8. Alan drew a polygon with four sides and four angles. All four sides are equal. None of the angles are right angles. What figure did Alan draw?

_____

_____

9. Teresa drew a quadrilateral with 2 pairs of parallel sides and 4 right angles. What quadrilateral could she have drawn?

_____

Lesson Check

1. Joey is asked to name a quadrilateral that is also a rhombus. What should be his answer?

(A) square

(B) rectangle

(C) parallelogram

(D) trapezoid

2. Which quadrilateral has exactly one pair of parallel sides?

(A) square

(B) rhombus

(C) parallelogram

(D) trapezoid

Spiral Review

3. Terrence has 24 eggs to divide into equal groups. What are all the possible numbers of eggs that Terence could put in each group? **(Lesson 5.2)**

(A) 1, 2, 3, 4

(B) 2, 4, 6, 8, 12

(C) 1, 2, 3, 4, 6, 8, 12, 24

(D) 24, 48, 72, 96

4. In a line of students, Jenna is number 8. The teacher says that a rule for a number pattern is *add 4*. The first student in line says the first term, 7. What number should Jenna say? **(Lesson 5.6)**

(A) 31

(B) 35

(C) 39

(D) 43

5. Lou eats $\frac{6}{8}$ of a pizza. What fraction of the pizza is left over? **(Lesson 7.5)**

(A) $\frac{1}{8}$

(B) $\frac{1}{4}$

(C) $\frac{1}{2}$

(D) $\frac{3}{4}$

6. Which capital letter appears to have parallel lines? **(Lesson 10.3)**
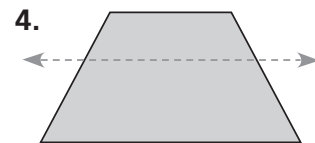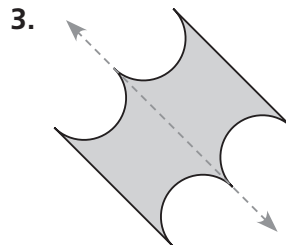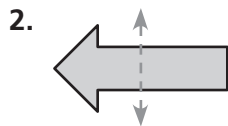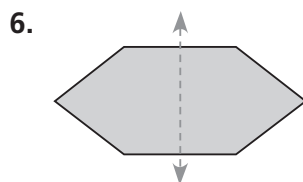
(A) D

(B) L
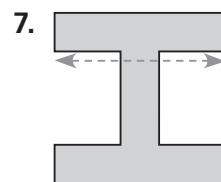
(C) N

(D) T

Name _____

Line Symmetry

Tell if the dashed line appears to be a line of symmetry.
Write *yes* or *no*.

1.

yes

2.

_____

3.

_____

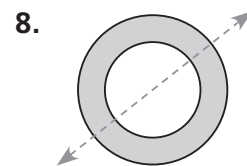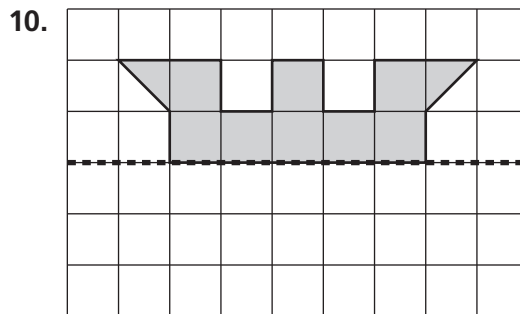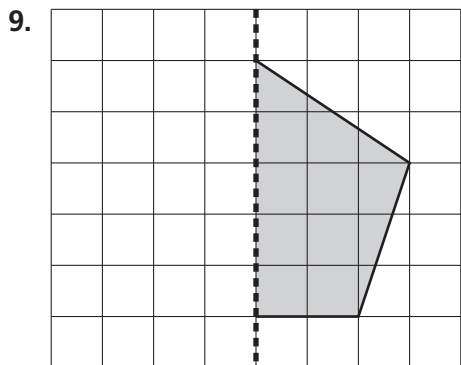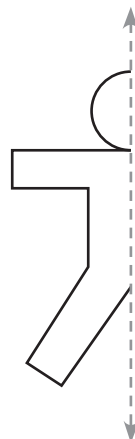**4.**

_____

5.

_____

6.

_____

7.

_____

8.

_____
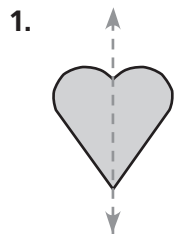
Complete the design by reflecting over the line of symmetry.

9.

10.

Problem Solving REAL WORLD

11. Kara uses the pattern at the right to make paper dolls. The dashed line represents a line of symmetry. A complete doll includes the reflection of the pattern over the line of symmetry. Complete the design to show what one of Kara's paper dolls looks like.
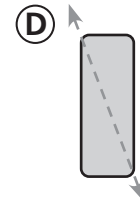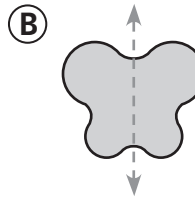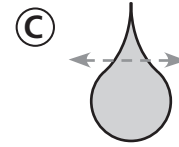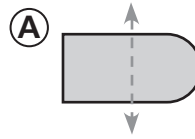
Lesson Check

1. Which best describes the line of symmetry in the letter D?

D

- **A** horizontal
- **B** vertical
- **C** diagonal
- **D** half turn

2. Which shape has a correctly drawn line of symmetry?

A

B
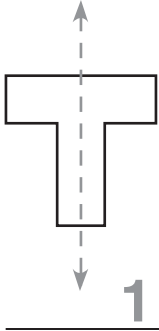
C

D

Spiral Review

3. The class has 360 unit cubes in a bag. Johnnie divides the unit cubes equally among 8 groups. How many unit cubes will each group get? **(Lesson 4.11)**

- **A** 40
- **B** 44
- **C** 45
- **D** 48

4. There are 5,280 feet in one mile. How many feet are there in 6 miles? **(Lesson 2.11)**

- **A** 30,680
- **B** 31,260
- **C** 31,608
- **D** 31,680

5. Sue has 4 pieces of wood. The lengths of her pieces of wood are $\frac{1}{3}$ foot, $\frac{2}{5}$ foot, $\frac{3}{10}$ foot, and $\frac{1}{4}$ foot. Which piece of wood is the shortest? **(Lesson 6.7)**

- **A** the $\frac{1}{3}$-foot piece
- **B** the $\frac{2}{5}$-foot piece
- **C** the $\frac{3}{10}$-foot piece
- **D** the $\frac{1}{4}$-foot piece

6. Alice has $\frac{1}{5}$ as many miniature cars as Sylvester has. Sylvester has 35 miniature cars. How many miniature cars does Alice have? **(Lesson 8.5)**
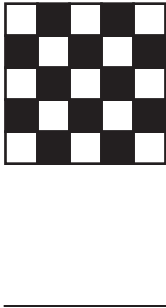
- **A** 7
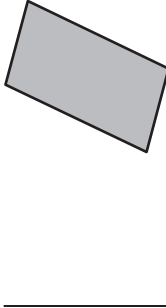- **B** 9
- **C** 40
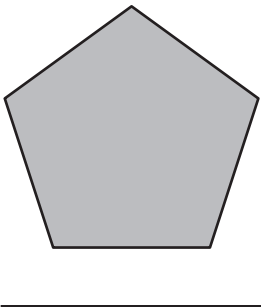- **D** 175

Name _____

Find and Draw Lines of Symmetry

Tell whether the shape appears to have zero lines, 1 line, or more than 1 line of symmetry. Write *zero,* *1,* **or** *more than 1.*
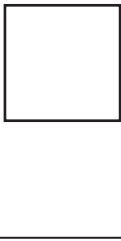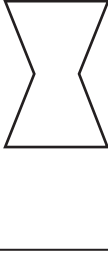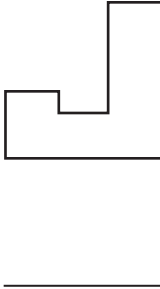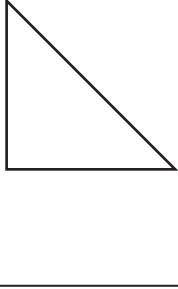
1.

1

2.

3.

4.

_____ _____ _____ _____

Does the design have line symmetry? Write *yes* **or** *no.*
If your answer is yes, draw all lines of symmetry.
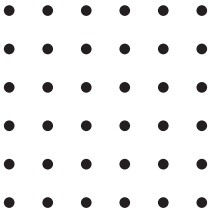
5.

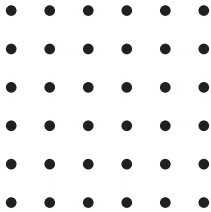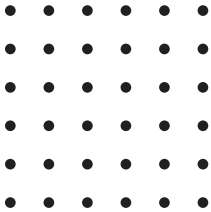**6.**

7.

8.

_____ _____ _____ _____

Draw a shape for the statement. Draw the line or lines of symmetry.

9. zero lines of symmetry

10. 1 line of symmetry

11. 2 lines of symmetry

Problem Solving REAL WORLD

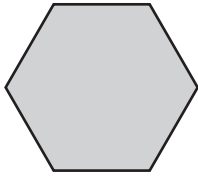**Use the chart for 12–13.**

| 0 | 2 | 3 | 4 |
| 5 | 6 | 8 | 9 |

12. Which number or numbers appear to have only 1 line of symmetry?

_____

13. Which number or numbers appear to have 2 lines of symmetry?
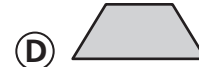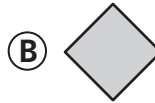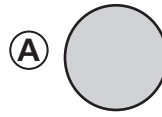
_____

Lesson Check

1. How many lines of symmetry does this shape appear to have?

- (A) 0
- (C) 6
- (B) 2
- (D) 10

2. Which of the following shapes appears to have exactly 1 line of symmetry?

(A)   (C)

(B)   (D)

Spiral Review

3. Richard practiced each of 3 piano solos for $\frac{5}{12}$ hour. How long did he practice in all? (Lesson 8.3)

- (A) $\frac{2}{3}$ hour
- (B) $1\frac{1}{4}$ hours
- (C) $1\frac{1}{3}$ hours
- (D) $1\frac{5}{12}$ hours

4. Which of the following decimals is equivalent to three and ten hundredths? (Lesson 9.2)

- (A) 0.30
- (B) 0.31
- (C) 3.01
- (D) 3.1

5. Lynne used $\frac{3}{8}$ cup of flour and $\frac{1}{3}$ cup of sugar in a recipe. Which number below is a common denominator for $\frac{3}{8}$ and $\frac{1}{3}$? (Lesson 6.4)

- (A) 8
- (B) 12
- (C) 16
- (D) 24

6. Kevin draws a figure that has four sides. All sides have the same length. His figure has no right angles. What figure does Kevin draw? (Lesson 10.4)

- (A) square
- (B) trapezoid
- (C) rhombus
- (D) rectangle

Problem Solving • Shape Patterns

Solve each problem.

1. Marta is using this pattern to decorate a picture frame. Describe the pattern. Draw what might be the next three figures in the pattern.
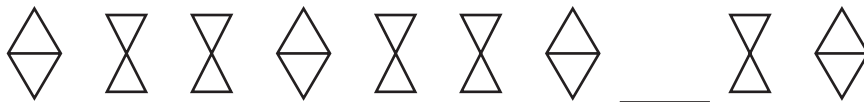
   Possible answer: the pattern repeats: **one triangle followed by two squares.**

2. Describe the pattern. Draw what might be the next three figures in the pattern. How many circles are in the sixth figure in the pattern?
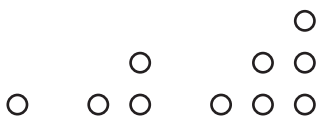
3. Larry stencils this pattern to make a border at the top of his bedroom walls. Describe the pattern. Draw what might be the missing figure in the pattern.

Lesson Check

1. What might be the next three figures in this pattern?

⇑⇓⇓⇑⇑⇓⇓⇓⇑⇑⇑⇑⇓⇓⇓

Ⓐ ⇓⇓⇑   Ⓒ ⇑⇓⇓

Ⓑ ⇓⇑⇑   Ⓓ ⇓⇓⇓

2. Which might be the missing figure in the following pattern?

⊗ ⊗ ⊕ ⊕ ___ ⊗ ⊕

Ⓐ ⊗   Ⓒ ⊕

Ⓑ ⊕   Ⓓ ⊗

Spiral Review

3. Chad has two pieces of wood. One piece is $\frac{7}{12}$ foot long. The second piece is $\frac{5}{12}$ foot longer than the first piece. How long is the second piece? **(Lesson 7.5)**

Ⓐ $\frac{2}{12}$ foot

Ⓑ $\frac{1}{2}$ foot

Ⓒ $\frac{12}{18}$ foot

Ⓓ 1 foot

4. Olivia finished a race in 40.64 seconds. Patty finished the race in 40.39 seconds. Miguel finished the race in 41.44 seconds. Chad finished the race in 40.46 seconds. Who finished the race in the least time?

(Lesson 9.7)

Ⓐ Olivia

Ⓑ Patty

Ⓒ Miguel

Ⓓ Chad

5. Justin bought 6 ribbons for an art project. Each ribbon is $\frac{1}{4}$ yard long. How many yards of ribbon did Justin buy? **(Lesson 8.1)**

Ⓐ $\frac{2}{3}$ yard

Ⓑ $1\frac{1}{4}$ yards

Ⓒ $1\frac{1}{2}$ yards

Ⓓ $1\frac{3}{4}$ yards

6. Kyle and Andrea were asked to make a list of prime numbers.

Kyle: 1, 3, 7, 19, 23
Andrea: 2, 3, 5, 7, 11

Whose list is correct? **(Lesson 5.5)**

Ⓐ Only Kyle's list

Ⓑ Only Andrea's list

Ⓒ Both lists are correct.

Ⓓ Neither list is correct.

Chapter 10 Extra Practice

Lesson 10.1

Draw and label an example of the figure.
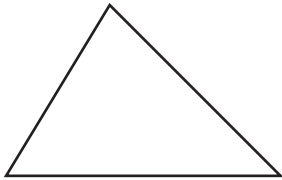
1. acute ∠MNP   **2.** $\overline{QR}$ **3.** $\overrightarrow{TS}$

Lesson 10.2

Classify each triangle. Write *acute*, *right*, or *obtuse*.
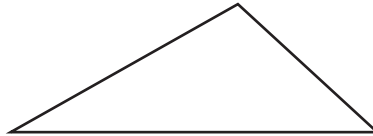
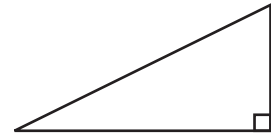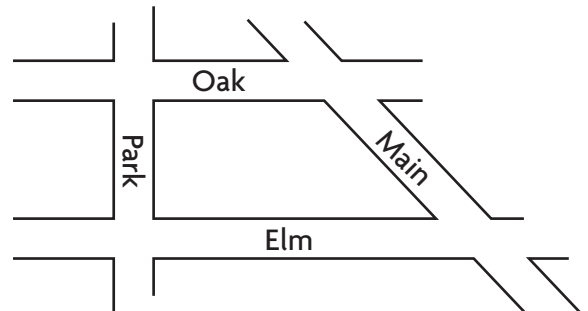**1.**   **2.**   **3.**

_____   _____   _____

Lesson 10.3

Use the streeet map for 1–2.

1. Name two streets that appear to be parallel.

_____

2. Name two streets that appear to be perpendicular.

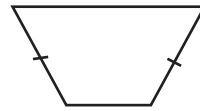_____

Oak

Park

Main

Elm

Lesson 10.4

Classify each figure as many ways as possible. Write
quadrilateral, *trapezoid*, *parallelogram*, *rhombus*, *rectangle*, **or** *square*.
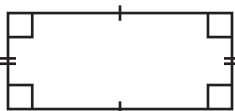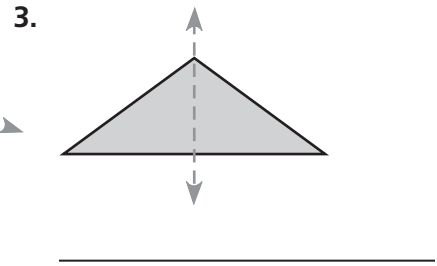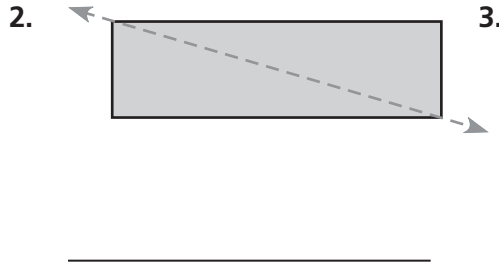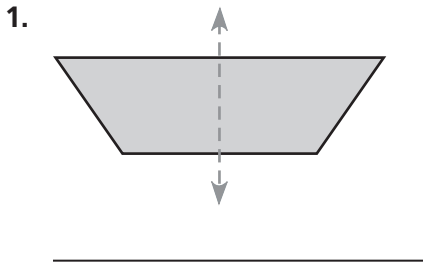
1.   **2.**

_____   _____

_____   _____

Lesson 10.5

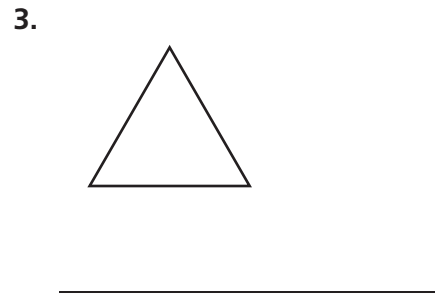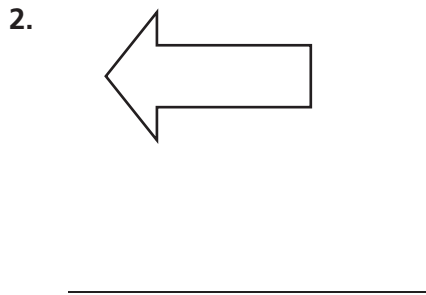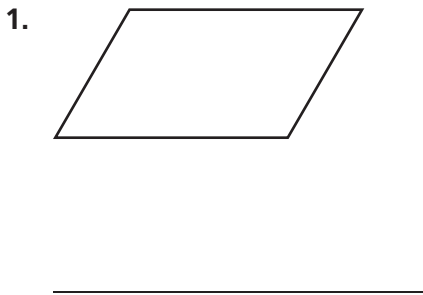**Tell if the dashed line appears to be a line of symmetry.**
Write *yes* or *no*.

1.

2.

3.

Lesson 10.6

Does the design have line symmetry? Write *yes* or *no*.
If your answer is *yes*, draw all lines of symmetry.

1.

2.

3.

Lesson 10.7

1. Sonia made a pattern. The first nine shapes are shown below. Describe the pattern. Draw what might be the next three shapes in Sonia's pattern.

○◇○○◇○○◇○ _____

2. Leo makes a pattern with triangles. Draw what might be the next figure in the pattern. How can you describe the pattern?

▽ ▽△ ▽△▽ ▽△▽△ _____