

Dear Family,

During the next few weeks, our math class will be learning about plane shapes. We will learn to identify polygons and describe them by their sides and angles.

You can expect to see homework that provides practice with shapes.

Here is a sample of how your child will be taught to classify quadrilaterals.

Vocabulary

angle A shape formed by two rays that share an endpoint

closed shape A shape that begins and ends at the same point

polygon A closed plane shape made up of straight line segments

quadrilateral A polygon with four sides and four angles

MODEL Classify Quadrilaterals

Use sides and angles to name this quadrilateral.

STEP 1 There are 2 right angles.

STEP 2 There is exactly 1 pair of opposite sides that are parallel.



So, the quadrilateral is a trapezoid.

Tips

Checking Angles

The corner of a sheet of paper or an index card can be used to check whether an angle in a polygon is *right*, *less than a right angle*, or *greater than a right angle*.

Activity

Point out everyday objects that resemble plane shapes, such as books, photos, windows, and traffic signs. Have your child identify the shape and describe it by its sides and angles.

Carta para la casa

Querida familia,

Durante las próximas semanas, en la clase de matemáticas aprenderemos sobre figuras planas. Aprenderemos a identificar polígonos y a describirlos según sus lados y ángulos.

Llevaré a casa tareas para practicar con figuras.

Este es un ejemplo de cómo clasificaremos cuadriláteros.

Vocabulario

ángulo Una figura compuesta por dos rayos que comparten un extremo

figura cerrada Una figura que comienza y termina en el mismo punto

polígono Una figura plana cerrada compuesta por segmentos rectos

cuadrilátero Un polígono con cuatro lados y cuatro ángulos

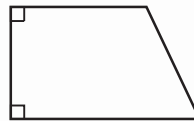


MODELO Clasificar cuadriláteros

Usa los lados y los ángulos para nombrar este cuadrilátero.

PASO 1 Hay dos ángulos rectos.

PASO 2 Hay exactamente 1 par de lados opuestos que son paralelos.



Por tanto, el cuadrilátero es un trapecio.

Pistas

Comprobar ángulos

Puedes usar la esquina de una hoja o de una tarjeta para comprobar si un ángulo de un polígono es *recto*, *menor que un ángulo recto* o *mayor que un ángulo recto*.

Actividad

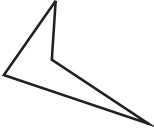
Señalen objetos cotidianos que parezcan figuras planas, como libros, fotografías, ventanas y señales de tráfico. Pida a su hijo o hija que identifique la figura y que la describa según sus lados y ángulos.


Name _____


Describe Plane Shapes


COMMON CORE STANDARD CC.3.G.1
Reason with shapes and their attributes.

Write how many line segments the shape has.

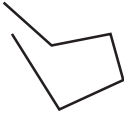
1. 
4 line segments

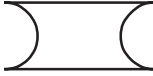
2. 
6 line segments

3. 
8 line segments

4. 
5 line segments

Write whether the shape is *open* or *closed*.

5. 
open

6. 
closed

Problem Solving

7. Carl wants to show a closed shape in his drawing. Show and explain how to make the drawing a closed shape.



Add a fourth line segment,
so the shape starts and
ends at the same point.

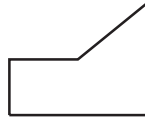
8. The shape of a fish pond at a park is shown below. Is the shape open or closed?



closed

Lesson Check (CC.3.G.1)

1. How many line segments does this shape have?



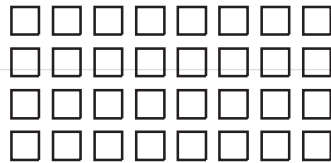
- (A) 2 (C) 4
 (B) 3 (D) 5

2. Which of these is part of a line, has one endpoint, and continues in one direction?

- ray
 (B) line
 (C) line segment
 (D) point

Spiral Review (CC.3.OA.3, CC.3.OA.7, CC.3.NF.3a)

3. What multiplication sentence does the array show? (Lesson 3.5)



- (A) $3 \times 8 = 24$ (C) $8 \times 5 = 40$
 (B) $4 \times 8 = 32$ (D) $4 \times 9 = 36$

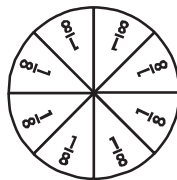
4. What is the unknown factor and quotient? (Lesson 6.8)

$$9 \times \square = 27$$

$$27 \div 9 = \square$$

- 3
 (B) 4
 (C) 5
 (D) 6

5. Which fraction is equivalent to $\frac{1}{8}$? (Lesson 9.6)



- (A) $\frac{3}{4}$ (C) $\frac{1}{4}$
 (B) $\frac{1}{2}$ (D) $\frac{1}{8}$

6. Mr. MacTavish has 30 students from his class going on a field trip to the zoo. He is placing 6 students in each group. How many groups of students from Mr. MacTavish's class will be going to the zoo? (Lesson 7.6)

- 5 (C) 7
 (B) 6 (D) 36

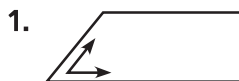
Name _____

Describe Angles in Plane Shapes

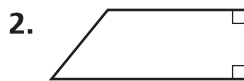
COMMON CORE STANDARD CC.3.G.1

Reason with shapes and their attributes.

Use the corner of a sheet of paper to tell whether the angle is a *right angle*, *less than a right angle*, or *greater than a right angle*.



less than a right angle



right angle



greater than a right angle

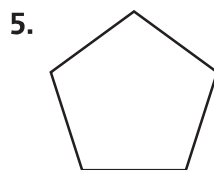
Write how many of each type of angle the shape has.



4 right

0 less than a right

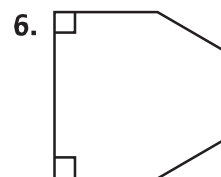
0 greater than a right



0 right

0 less than a right

5 greater than a right



2 right

0 less than a right

4 greater than a right

Problem Solving

REAL WORLD

7. Jeff has a square piece of art paper. He cuts across it from one corner to the opposite corner to make two pieces. What is the total number of sides and angles in both of the new shapes?

6 sides, 6 angles

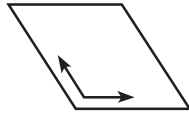
8. Kaylee tells Aimee that the shape of a stop sign has at least one right angle. Aimee says that there are no right angles. Who is correct? **Explain.**



Aimee; Possible explanation: all the angles are greater than a right angle.

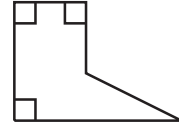
Lesson Check (CC.3.G.1)

1. What describes this angle?



- (A) right angle
- (B) less than a right angle
- (C) greater than a right angle
- (D) small angle

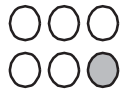
2. How many right angles does this shape have?



- (A) 1
- (B) 2
- (C) 3
- (D) 4

Spiral Review (CC.3.NF.1, CC.3.NF.3d, CC.3.G.1)

3. What fraction of the group is shaded? (Lesson 8.7)



- (A) $\frac{5}{6}$
- (B) $\frac{1}{3}$
- (C) $\frac{1}{6}$
- (D) $\frac{1}{8}$

4. Compare. (Lesson 9.2)

$$\frac{4}{8} \bigcirc \frac{3}{8}$$

- (A) $>$
- (B) $<$
- (C) $=$
- (D) \div

5. Which of the following does NOT describe a line segment? (Lesson 12.1)

- (A) does not end
- (B) is straight
- (C) is part of a line
- (D) has 2 endpoints

6. How many line segments does this shape have? (Lesson 12.1)



- (A) 5
- (B) 7
- (C) 6
- (D) 8

Name _____

Identify Polygons

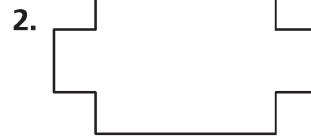
COMMON CORE STANDARD CC.3.G.1

Reason with shapes and their attributes.

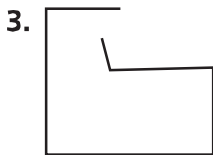
Is the shape a polygon? Write *yes* or *no*.



no



yes



no



no

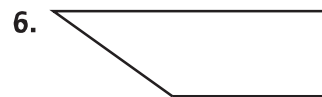
Write the number of sides and the number of angles. Then name the polygon.



6 sides

6 angles

hexagon



4 sides

4 angles

quadrilateral

Problem Solving



7. Mr. Murphy has an old coin that has ten sides. If its shape is a polygon, how many angles does the old coin have?

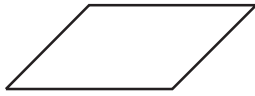
10 angles

8. Lin says that an octagon has six sides. Chris says that it has eight sides. Whose statement is correct?

Chris's statement

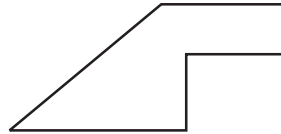
Lesson Check (CC.3.G.1)

1. Which is a name for this polygon?



- (A) hexagon
- (B) octagon
- (C) quadrilateral
- (D) pentagon

2. How many sides does this polygon have?



- (A) 4
- (B) 5
- (C) 6
- (D) 7

Spiral Review (CC.3.NF.1, CC.3.G.1)

3. How many right angles does this shape have? (Lesson 12.2)



- (A) 4
- (B) 3
- (C) 2
- (D) 0

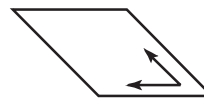
4. Erica has 8 necklaces. One fourth of the necklaces are blue. How many necklaces are blue? (Lesson 8.9)

- (A) 2
- (B) 3
- (C) 4
- (D) 8

5. Which of these is straight, is part of a line, and has 2 endpoints? (Lesson 12.1)

- (A) line
- (B) line segment
- (C) point
- (D) ray

6. What describes this angle? (Lesson 12.2)



- (A) greater than a right angle
- (B) large angle
- (C) less than a right angle
- (D) right angle

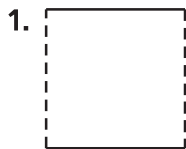
Name _____

Describe Sides of Polygons

COMMON CORE STANDARD CC.3.G.1

Reason with shapes and their attributes.

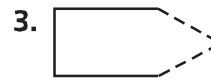
Look at the dashed sides of the polygon. Tell if they appear to be *intersecting*, *perpendicular*, or *parallel*. Write all the words that describe the sides.



parallel



intersecting, perpendicular



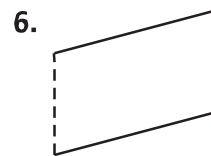
intersecting



intersecting



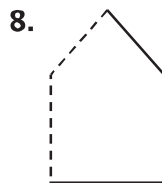
intersecting, perpendicular



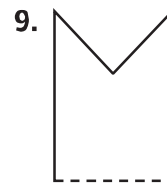
parallel



parallel



intersecting



intersecting, perpendicular

Problem Solving REAL WORLD

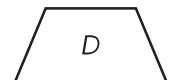
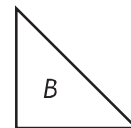
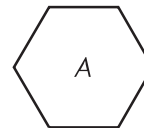
Use shapes A–D for 10–11.

10. Which shapes appear to have parallel sides?

A, C, D

11. Which shapes appear to have perpendicular sides?

B, C



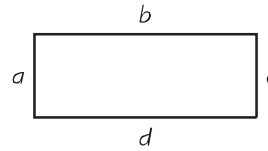
Lesson Check (CC.3.G.1)

1. How many pairs of parallel sides does the quadrilateral appear to have?



- Ⓐ 1 Ⓒ 3
 2 Ⓓ 4

2. Which sides appear to be parallel?

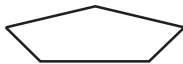


- Ⓐ *a* and *c* only
 Ⓑ *b* and *d* only
 Ⓒ *a* and *b*, *c* and *d*
 a and *c*, *b* and *d*

Spiral Review (CC.3.NF.1, CC.3.G.1)

3. Mr. Lance designed a class banner shaped like the polygon shown. What is the name of the polygon?

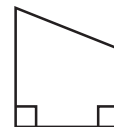
(Lesson 12.3)



- pentagon Ⓒ hexagon
 Ⓑ octagon Ⓓ decagon

4. How many angles greater than a right angle does this shape have?

(Lesson 12.2)



- Ⓐ 0 Ⓒ 2
 1 Ⓓ 3

5. How many line segments does this shape have? (Lesson 12.1)



- Ⓐ 6 8
 Ⓑ 7 Ⓓ 9

6. Which fraction names the shaded part? (Lesson 8.3)



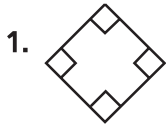
- Ⓐ $\frac{1}{3}$ $\frac{1}{6}$
 Ⓑ $\frac{1}{4}$ Ⓓ $\frac{5}{6}$

Name _____

Classify Quadrilaterals

COMMON CORE STANDARD CC.3.G.1
Reason with shapes and their attributes.

Circle all the words that describe the quadrilateral.



- square
- rectangle
- rhombus
- trapezoid

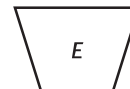
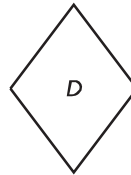
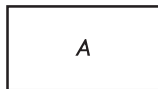


- square
- rectangle
- rhombus
- trapezoid



- square
- rectangle
- rhombus
- trapezoid

Use the quadrilaterals below for 4–6.



4. Which quadrilaterals appear to have no right angles?

B, D, and E

5. Which quadrilaterals appear to have 4 right angles?

A and C

6. Which quadrilaterals appear to have 4 sides of equal length?

B, C, and D

Problem Solving

REAL WORLD

7. A picture on the wall in Jeremy's classroom has 4 right angles, 4 sides of equal length, and 2 pairs of opposite sides that are parallel. What quadrilateral best describes the picture?

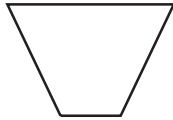
square

8. Sofia has a plate that has 4 sides of equal length, 2 pairs of opposite sides that are parallel, and no right angles. What quadrilateral best describes the plate?

rhombus

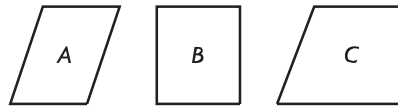
Lesson Check (CC.3.G.1)

1. Which word describes the quadrilateral?



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

2. Which quadrilaterals appear to have 2 pairs of opposite sides that are parallel?



- (A) A and B
- (B) A, B, and C
- (C) A only
- (D) B only

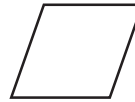
Spiral Review (CC.3.G.1)

3. Aiden drew the the polygon shown. What is the name of the polygon he drew? (Lesson 12.3)



- (A) decagon
- (B) hexagon
- (C) octagon
- (D) pentagon

4. How many pairs of parallel sides does this shape appear to have? (Lesson 12.4)



- (A) 4
- (B) 2
- (C) 1
- (D) 0

5. What word describes the dashed sides of the shape shown? (Lesson 12.4)



- (A) intersecting
- (B) parallel
- (C) perpendicular
- (D) right

6. How many right angles does this shape have? (Lesson 12.2)



- (A) 0
- (B) 1
- (C) 2
- (D) 3

Name _____

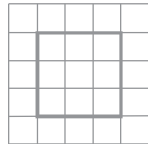
Draw Quadrilaterals

COMMON CORE STANDARD CC.3.G.1
Reason with shapes and their attributes.

Draw a quadrilateral that is described.
Name the quadrilateral you drew.

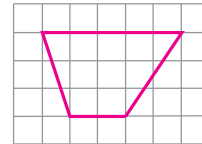
2–3: Check students' drawings.
Possible drawings are shown.

1. 4 sides of equal length



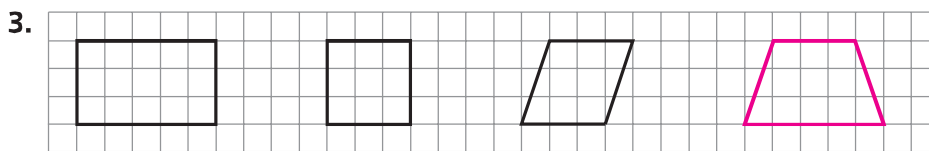
square

2. 1 pair of opposite sides that are parallel



trapezoid

Draw a quadrilateral that does not belong.
Then explain why.



Possible explanation: I drew a trapezoid. It has only 1 pair of opposite sides that are parallel. The 3 quadrilaterals shown have 2 pairs of sides that are parallel.

Problem Solving



4. Layla drew a quadrilateral with 4 right angles and 2 pairs of opposite sides that are parallel. Name the quadrilateral she could have drawn.

square or rectangle

5. Victor drew a quadrilateral with no right angles and 4 sides of equal length. What quadrilateral could Victor have drawn?

rhombus

Lesson Check (CC.3.G.1)

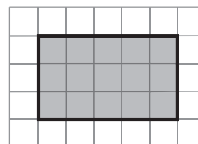
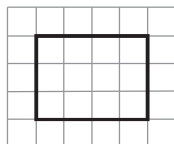
- Chloe drew a quadrilateral with 2 pairs of opposite sides that are parallel. Which shape could NOT be Chloe's quadrilateral?
 - (A) rectangle
 - (B) rhombus
 - (C) square
 - trapezoid
- Mike drew a quadrilateral with four right angles. Which shape could he have drawn?
 - rectangle
 - (B) hexagon
 - (C) trapezoid
 - (D) triangle

Spiral Review (CC.3.MD.7, CC.3.MD.8, CC.3.G.1)

- A quadrilateral has 4 right angles and 4 sides of equal length. What is the name of the quadrilateral?
- Mark drew two lines that form a right angle. Which word describes the lines Mark drew? (Lesson 12.4)

(Lesson 12.5)

- (A) pentagon
 - square
 - (C) trapezoid
 - (D) hexagon
- perpendicular
 - (B) parallel
 - (C) acute
 - (D) obtuse
- Dennis drew the rectangle on grid paper. What is the perimeter of the rectangle Dennis drew? (Lesson 11.2)
 - Jill drew the rectangle on grid paper. What is the area of the rectangle Jill drew? (Lesson 11.5)



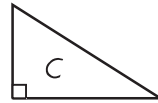
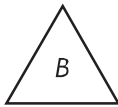
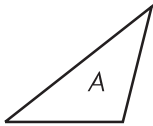
- (A) 7 units
 - (B) 12 units
 - 14 units
 - (D) 15 units
- (A) 12 square units
 - 15 square units
 - (C) 16 square units
 - (D) 18 square units

Name _____

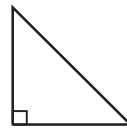
Describe Triangles

COMMON CORE STANDARD CC.3.G.1
Reason with shapes and their attributes.

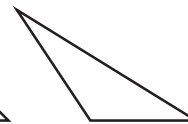
Use the triangles for 1–3. Write *A*, *B*, or *C*.
Then complete the sentences.



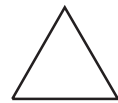
- Triangle ***B*** has 3 angles less than a right angle and appears to have ***3*** sides of equal length.
- Triangle ***C*** has 1 right angle and appears to have ***0*** sides of equal length.
- Triangle ***A*** has 1 angle greater than a right angle and appears to have ***2*** sides of equal length.
- Kyle, Kathy, and Kelly each drew a triangle. Who drew the triangle that has 1 angle greater than a right angle and appears to have no sides of equal length?



Kyle



Kathy

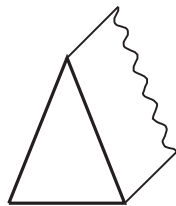


Kelly

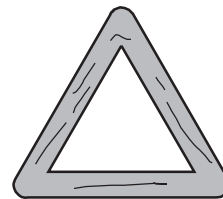
Kathy

Problem Solving **REAL WORLD**

- Matthew drew the back of his tent. How many sides appear to be of equal length?
- Sierra made the triangular picture frame shown. How many angles are greater than a right angle?



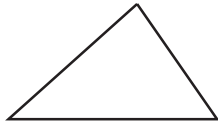
2 sides



0 angles

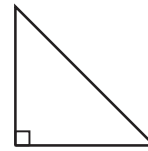
Lesson Check (CC.3.G.1)

1. How many angles less than a right angle does this triangle have?



- (A) 0 (C) 2
 (B) 1 (D) 3

2. How many sides of equal length does this triangle appear to have?



- (A) 0 (C) 2
 (B) 1 (D) 3

Spiral Review (CC.3.NF.1, CC.3.MD.8, CC.3.G.1)





3. A quadrilateral has 4 right angles and 2 pairs of opposite sides that are parallel. Which quadrilateral could it be? (Lesson 12.5)

- (A) trapezoid
 (B) hexagon
 (C) triangle
 (D) rectangle

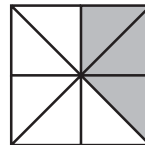
4. Mason drew a quadrilateral with only one pair of opposite sides that are parallel. Which quadrilateral did Mason draw? (Lesson 12.6)

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

5. Which shape has an area of 8 square units and a perimeter of 12 units? (Lesson 11.10)

- (A)  (C) 
 (B)  (D) 

6. What fraction of the square is shaded? (Lesson 8.4)



- (A) $\frac{3}{5}$ (C) $\frac{3}{8}$
 (B) $\frac{5}{3}$ (D) $\frac{8}{3}$

Name _____

PROBLEM SOLVING Lesson 12.8

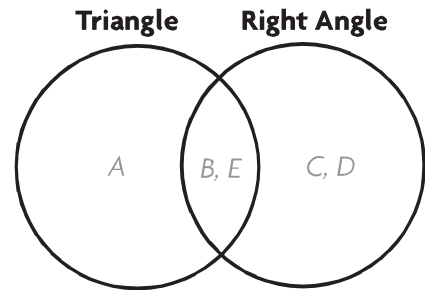
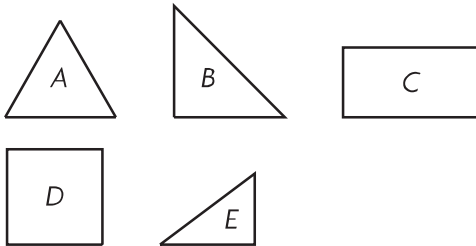
Problem Solving • Classify Plane Shapes

COMMON CORE STANDARD CC.3.G.1

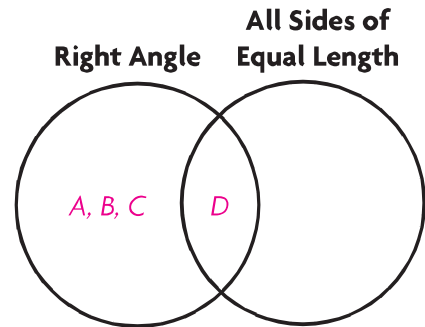
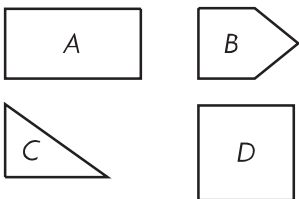
Reason with shapes and their attributes.

Solve each problem.

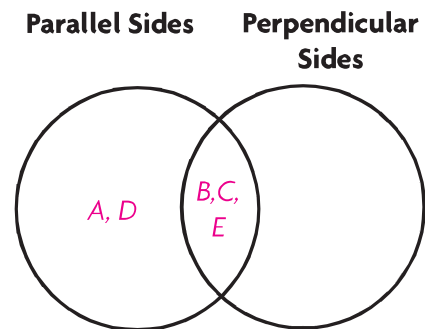
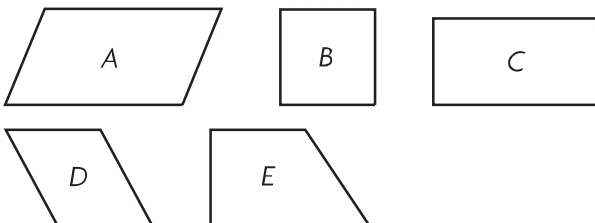
1. Steve drew the shapes below. Write the letter of each shape where it belongs in the Venn diagram.



2. Janice drew the shapes below. Write the letter of each shape where it belongs in the Venn diagram.



3. Beth drew the shapes below. Write the letter of each shape where it belongs in the Venn diagram.



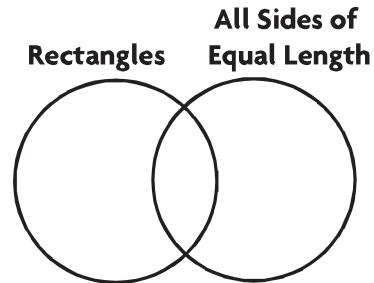
Lesson Check (CC.3.G.1)

1. Which shape would go in the section where the two circles overlap?

- (A) triangle square
 (B) trapezoid (D) hexagon

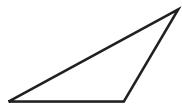
2. Which shape could NOT go in the circle labeled *All Sides of Equal Length*?

- (A) rhombus (C) square
 trapezoid (D) triangle



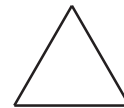
Spiral Review (CC.3.NF.1, CC.3.G.1)

3. How many angles greater than a right angle does this triangle have? (Lesson 12.7)



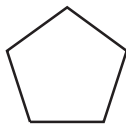
- (A) 0 (C) 2
 1 (D) 3

4. How many sides of equal length does this triangle appear to have? (Lesson 12.7)



- (A) 0 (C) 2
 (B) 1 3

5. Madison drew this shape. How many angles less than a right angle does it have? (Lesson 12.2)



- 0 (C) 3
 (B) 1 (D) 5

6. How many dots are in $\frac{1}{2}$ of this group? (Lesson 8.7)



- (A) 6 9
 (B) 8 (D) 18

Name _____

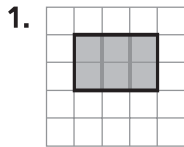
Relate Shapes, Fractions, and Area

COMMON CORE STANDARD CC.3.G.2

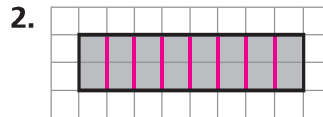
Reason with shapes and their attributes.

Draw lines to divide the shape into equal parts that show the fraction given.

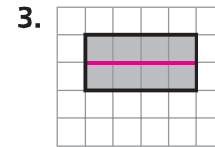
Possible drawings are shown.



$$\frac{1}{3}$$



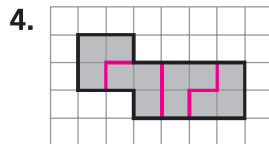
$$\frac{1}{8}$$



$$\frac{1}{2}$$

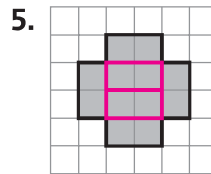
Draw lines to divide the shape into parts with equal area. Write the area of each part as a unit fraction.

Possible drawings are shown.



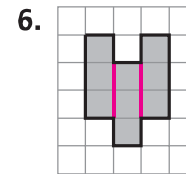
4 equal parts

$$\frac{1}{4}$$



6 equal parts

$$\frac{1}{6}$$



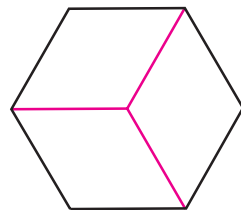
3 equal parts

$$\frac{1}{3}$$

Problem Solving

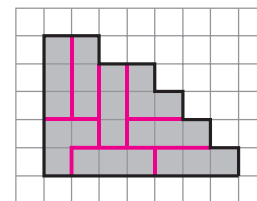
Possible drawings are shown.

7. Robert divided a hexagon into 3 equal parts. Show how he might have divided the hexagon. Write the fraction that names each part of the whole you divided.



$$\frac{1}{3}$$

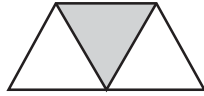
8. Show how you might divide the shape into 8 equal parts. What fraction names the area of each part of the divided shape?



$$\frac{1}{8}$$

Lesson Check (CC.3.G.1)

1. What fraction names each part of the divided whole?



- (A) $\frac{1}{2}$ (C) $\frac{1}{4}$
 $\frac{1}{3}$ (D) $\frac{1}{6}$

2. What fraction names the whole area that was divided?



- (A) $\frac{1}{8}$ $\frac{8}{8}$
 (B) $\frac{1}{2}$ (D) $\frac{8}{1}$

Spiral Review (CC.3.G.1)

3. Lil drew the figure below. Which word does NOT describe the shape? (Lesson 12.1)



- (A) plane shape
 (B) closed shape
 open shape
 (D) curved path

4. How many line segments does this shape have? (Lesson 12.1)



- (A) 6
 5
 (C) 4
 (D) 3

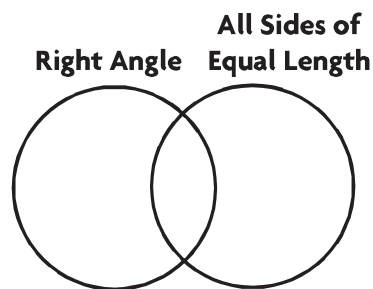
Use the Venn diagram for 5–6. (Lesson 12.8)

5. Which shape would go in the section where the two circles overlap?

- (A) triangle (C) trapezoid
 square (D) pentagon

6. Which shape could NOT go in the circle labeled *All Sides of Equal Length*?

- (A) square (C) triangle
 (B) rhombus rectangle



Name _____

Chapter 12 Extra Practice

Lessons 12.1 - 12.3

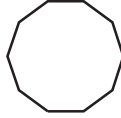
Name the polygon.

1.



quadrilateral

2.



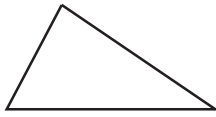
decagon

3.



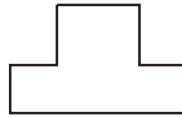
hexagon

4.



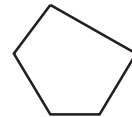
triangle

5.



octagon

6.



pentagon

Lesson 12.4

Look at the dashed sides of the polygon. Tell if they appear to be *intersecting*, *perpendicular*, or *parallel*.

Write all the words that describe the sides.

1.



intersecting,
perpendicular

2.



parallel

3.



intersecting

Lesson 12.5

Circle all the words that describe the quadrilateral.

1.

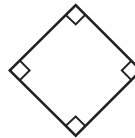


rhombus

trapezoid

rectangle

2.

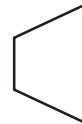


square

rhombus

trapezoid

3.



trapezoid

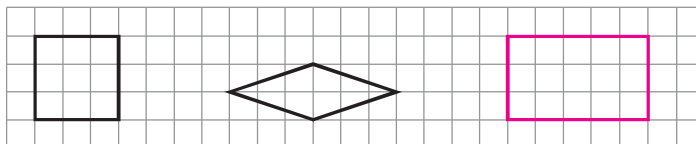
rectangle

rhombus

Lesson 12.6

Draw a quadrilateral that does not belong. Then explain why.

Possible drawing is shown.

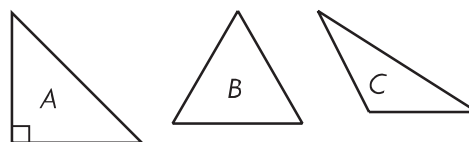


Possible explanation: I drew a rectangle. It does not have 4 sides of equal length, like the square and rhombus.

Lesson 12.7

Use the triangles for 1–2. Write A, B, or C. Then complete the sentences.

1. Triangle **C** has 1 angle greater than a right angle and appears to have **0** sides of equal length.



2. Triangle **A** has 1 right angle and appears to have **2** sides of equal length.

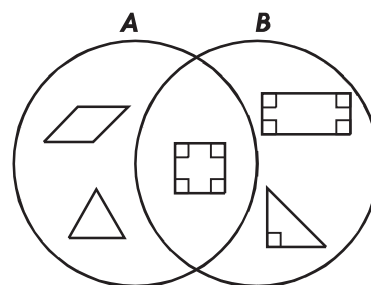
Lesson 12.8

1. What label could you use to describe Circle A?

Possible answer: Polygons with All Sides of Equal Length

2. What label could you use to describe Circle B?

Possible answer: Polygons with Right Angles



Lesson 12.9

Draw lines to divide the shape into equal parts that show the fraction given.

Possible drawings are shown.

1.  $\frac{1}{4}$

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