

Define Two-Dimensional Shapes

Show What You Know

► Plane Shapes

1. Color the triangles blue.



2. Color the rectangles red.



► Number of Sides Write the number of sides.

3.



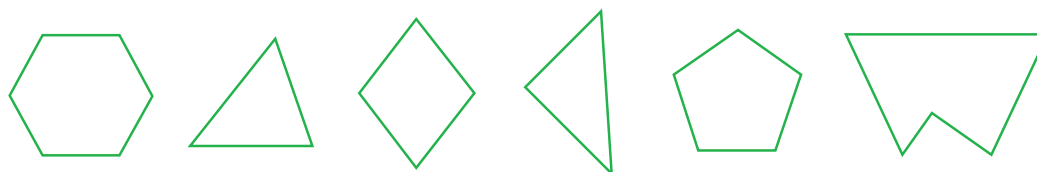
_____ sides

4.



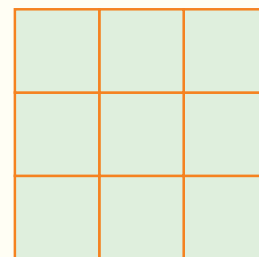
_____ sides

5. Circle the shapes that have 4 or more sides.



MATH in the Real World

Whitney found this drawing that shows 9 small squares. Find larger squares in the drawing. How many squares are there in all? Explain.



Name _____

Explore Lines, Rays, and Angles

I Can describe and identify attributes of two-dimensional shapes.

Florida's B.E.S.T.

- Geometric Reasoning 3.GR.1.1
- Mathematical Thinking & Reasoning MTR.1.1, MTR.3.1, MTR.4.1, MTR.7.1



UNLOCK the Problem Real World

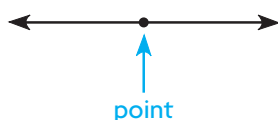
An architect draws plans for houses, stores, offices, and other buildings. Look at the shapes in the drawing at the right.

A **plane shape** is a shape on a flat surface. It is formed by points that make curved paths, line segments, or both.



point

- is an exact position or location



line

- is a straight path
- continues in both directions
- does not end



endpoints

- points that are used to show segments of lines



line segment

- is straight
- is part of a line
- has 2 endpoints

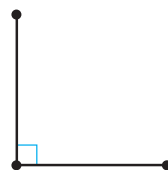


ray

- is straight
- is part of a line
- has 1 endpoint
- continues in one direction



These two line segments form a square corner, also known as a **right angle** or square angle.



The line segments have one shared _____.

_____.

Math Talk


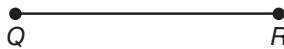
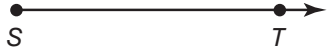
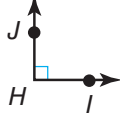
MTR 4.1

Engage in discussions on mathematical thinking.

Why can you not measure the length of a line?


Go Online For more help

There are specific ways that you name geometric shapes.

Picture	Words	Symbols
	line JK line KJ	\overleftrightarrow{JK} \overleftrightarrow{KJ}
	line segment QR line segment RQ	\overline{QR} \overline{RQ}
	ray ST	\overrightarrow{ST}
	angle JHI angle IHI angle H	$\angle JHI$ $\angle IHI$ $\angle H$

Try This! Draw and label the shape.

\overleftrightarrow{LM}	\overrightarrow{RS}
$\angle Y$	\overline{AB}



**Math
Talk**

MTR

4.1

Engage in discussions on mathematical thinking.

How do you know that a shape is made of line segments and not lines?

- Is there another way to name \overline{FG} ? Explain.



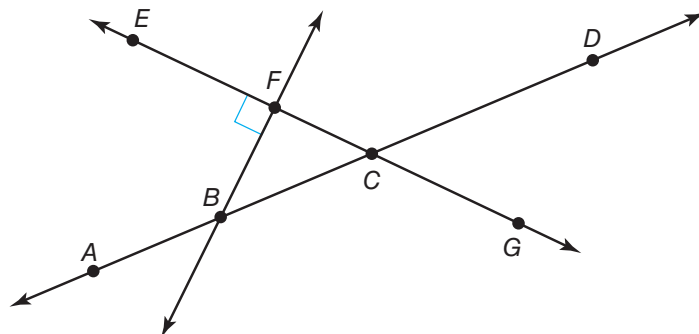
Name _____

Share and Show



Use the figure for Problems 1–5.

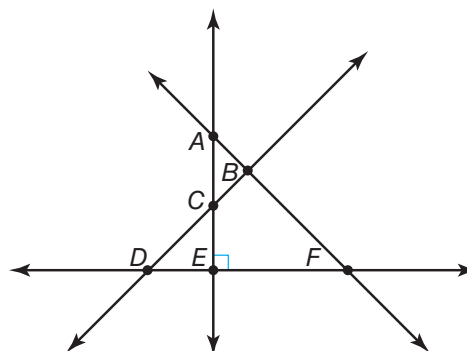
1. Name a ray. _____
- ✓ 2. Name a line segment. _____
3. Name a point. _____
4. Name a line. _____
- ✓ 5. Name a right angle. _____



On Your Own

Use the figure for Problems 6–10.

6. Name a right angle. _____
7. Name a ray. _____
8. Name a point. _____
9. Name a line segment. _____
10. Name a line. _____



Draw and label the shape.

11. point U

12. line PQ

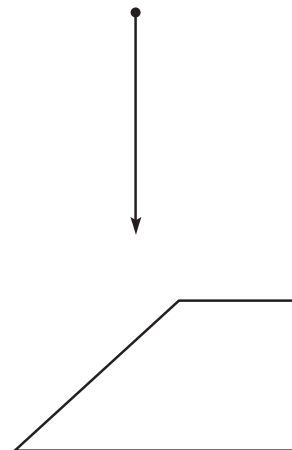
13. line segment ZA

14. ray QN

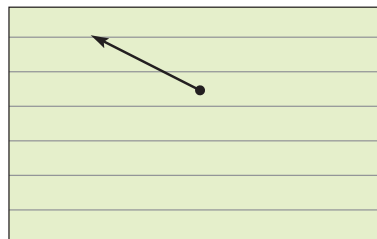
Problem Solving • Applications

15. Brittany says there are two endpoints in the shape shown at the right. Is she correct? Explain.

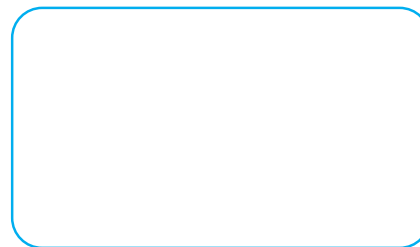
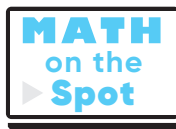
16. **MTR** Nikos draws a plan for his new porch. He plans to put a planter at every right angle on the porch. How many planters will he need?



17. Look at Carly's drawing at the right. What did she draw? How is it like a line? How is it different? Change the drawing so that it is a line.



18. Draw a shape in the workspace by connecting 5 line segments at their endpoints.



19. Lupe draws a shape with these five points: P , Q , R , S , T . The shape continues in both directions. What is a possible name for the shape? Explain.

Name _____

Describe Angles in Shapes

I Can describe the size of angles in different shapes.**Florida's B.E.S.T.**

- Geometric Reasoning
3.GR.1.1
- Mathematical Thinking & Reasoning
MTR.1.1, MTR.2.1, MTR.3.1, MTR.4.1,
MTR.5.1, MTR.6.1, MTR.7.1

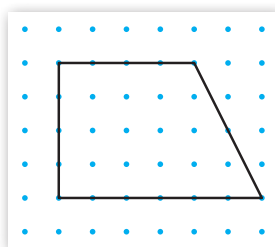
**UNLOCK the Problem**

An **angle** is formed by two rays that share an endpoint. Plane shapes have angles formed by two line segments that share an endpoint. The shared endpoint is called a **vertex**. The plural of *vertex* is *vertices*.



Paco drew this shape on dot paper.

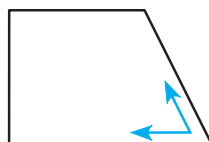
How can you describe the angles in the shape Paco drew?



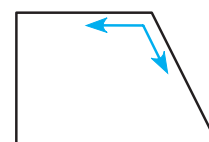
- How many angles are in Paco's shape?

Describe angles.

A right angle is an angle that forms a square corner.



Some angles are less than a right angle.



Some angles are greater than a right angle.

Look at Paco's shape.

Two angles are _____ angles, _____ angle
is _____ a right angle, and _____ angle
is _____ a right angle.

Math Talk

MTR 7.1 Apply mathematics to real-world contexts.

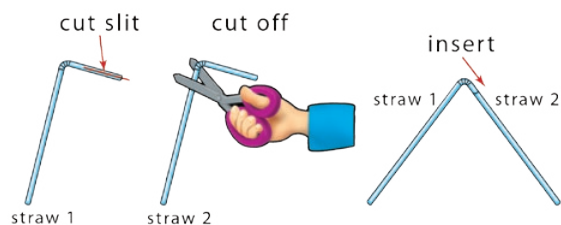
What are some examples of these types of angles that you see in everyday life? Describe where you see them and what types of angles you see.

Activity Model angles.

Materials ■ bendable straws ■ scissors ■ paper ■ pencil



- Cut a small slit in the shorter section of a bendable straw. Cut off the shorter section of a second straw and the bendable part. Insert the slit end of the first straw into the second straw.



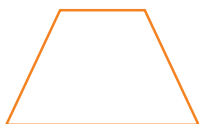
- Make an angle with the straws you put together. Compare the angle you made to a corner of the sheet of paper.
- Open and close the straws to make other types of angles.

In the space below, trace the angles you made with the straws. Label each *right angle*, *less than a right angle*, or *greater than a right angle*.

Share and Show

Math Board

1. How many angles are in the shape at the right?



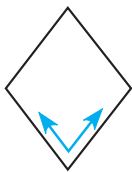
Math Talk

MTR 5.1 Use patterns and structure.

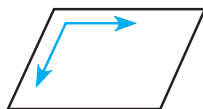
How can you count the number of angles to tell if a shape is a triangle or not?

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*.

✓ 2.



3.



✓ 4.



Name _____

On Your Own

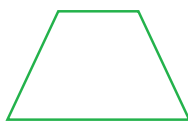
Write how many of each type of angle the shape has.

5.



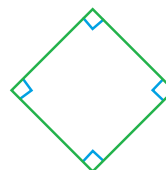
_____ right angle(s)
 _____ less than a right angle
 _____ greater than a right angle

6.



_____ right angle(s)
 _____ less than a right angle
 _____ greater than a right angle

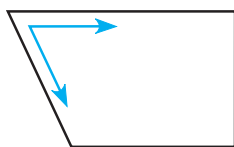
7.



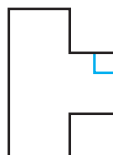
_____ right angle(s)
 _____ less than a right angle
 _____ greater than a right angle

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*.

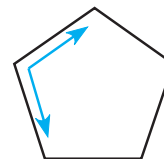
8.



9.

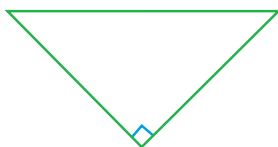


10.

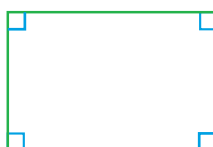


MTR Write how many right angles, how many angles less than a right angle, and how many angles greater than a right angle each shape has.

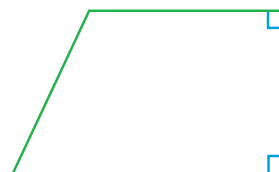
11.



12.

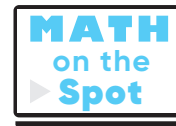


13.

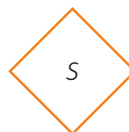


Problem Solving · Applications

14. Describe the types of angles formed when you divide a square into 4 equal parts. How can you describe the line segments you drew?



15. Holly drew the four shapes below.
Which shape does NOT have sides that form a right angle?



- a. What do you need to know? _____
- b. Tell how you might use a sheet of paper to solve the problem.
- _____
- _____

- c. Shape Q has _____ right angle(s), _____ angle(s) greater than a right angle, and _____ angle(s) less than a right angle.

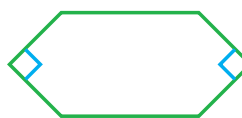
Shape R has _____ right angle(s), _____ angle(s) greater than a right angle, and _____ angle(s) less than a right angle.

Shape S has _____ right angle(s), _____ angle(s) greater than a right angle, and _____ angle(s) less than a right angle.

Shape T has _____ right angle(s), _____ angle(s) greater than a right angle, and _____ angle(s) less than a right angle.

So, shape _____ does not have sides that form a right angle.

16. Circle a number or word from each box to complete the sentence to describe all of the angles in this shape.



There are

2
3
4

 right angles and

2
3
4

 angles

less
greater

 than a right angle.

Name _____

Describe Sides of Shapes

I Can describe line segments that are sides of shapes.

Florida's B.E.S.T.

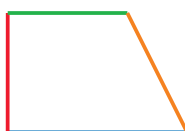
● Geometric Reasoning

3.GR.1.1

● Mathematical Thinking & Reasoning

MTR.1.1, MTR.2.1, MTR.4.1, MTR.5.1,
MTR.7.1**UNLOCK the Problem**

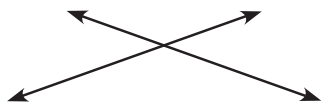
Look at the shape.
How many pairs of
sides are parallel?



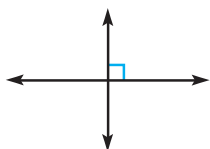
- How do you know the shape is a polygon?

TYPES OF LINES

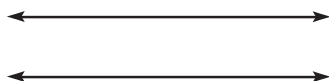
Lines that cross or meet are **intersecting lines**. Intersecting lines form angles.



Intersecting lines that cross or meet to form right angles are **perpendicular lines**.



Lines that never cross or meet and are always the same distance apart are **parallel lines**. They do not form any angles.



So, the polygon above has _____ pair of parallel sides.

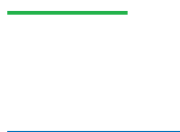
TYPES OF LINE SEGMENTS



The orange and blue line segments meet and form an angle. So, they are _____.



The red and blue line segments meet to form a right angle. So, they are _____.



The green and blue line segments would never cross or meet. They are always the same distance apart. So, they appear to be _____.

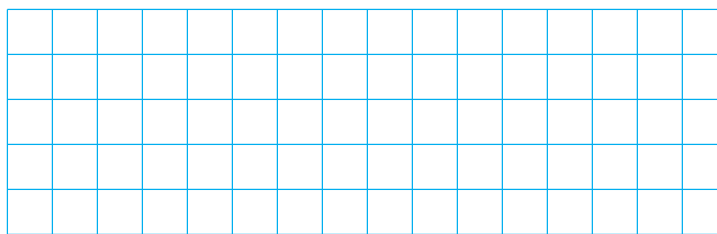
Math Talk**MTR 4.1**

Engage in discussions on mathematical thinking.

Why can parallel lines not ever cross?

Go Online For more help

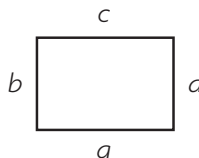
Try This! Draw a polygon with only 1 pair of parallel sides. Then draw a polygon with 2 pairs of parallel sides. Outline each pair of parallel sides with a different color.



Share and Show

Math Board

1. Which sides appear to be parallel?



Think: Which pairs of sides appear to be the same distance apart?

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



2.



3.





4.



Math Talk

MTR 5.1

Use patterns and structure.

How are intersecting and perpendicular lines alike and how are they different?

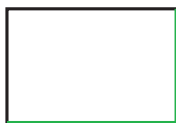
On Your Own

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

5.



6.



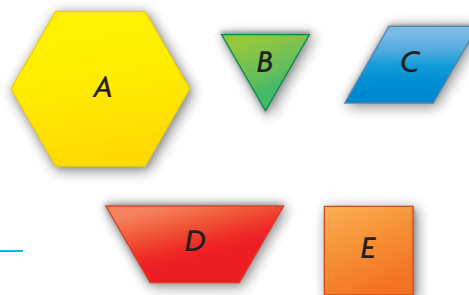
7.



Name _____

Use pattern blocks A–E for 8–11.

Chelsea wants to sort pattern blocks by the types of sides.



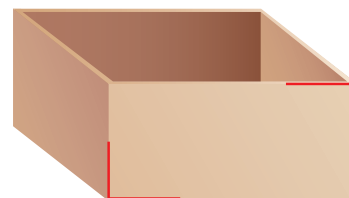
8. Which blocks have intersecting sides?

9. Which blocks have parallel sides?

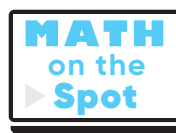
10. Which blocks have perpendicular sides?

11. Which blocks have neither parallel nor perpendicular sides?

12. **MTR** On the box at the right, how many pairs of edges are perpendicular line segments?



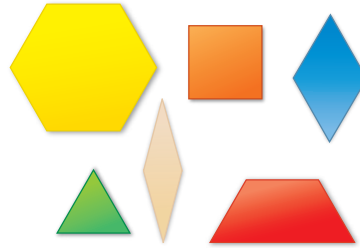
13. Can the same two lines be parallel, perpendicular, and intersecting? Explain your answer.



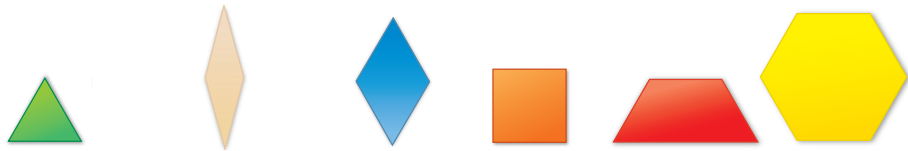
▲ The red line segments show some pairs of perpendicular line segments.

Problem Solving · Applications

14. **MTR** I am a pattern block that has 2 fewer sides than a hexagon. I have 2 pairs of parallel sides and 4 right angles. Which shape am I?



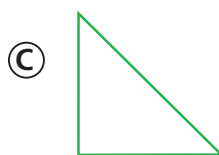
- a. What do you need to know? _____
- _____
- b. How can you find the answer to the riddle? _____
- _____
- c. Write *yes* or *no* in the table to solve the riddle.



2 fewer sides than a hexagon						
exactly 2 pairs of parallel sides						
4 right angles						

So, the _____ is the shape.

15. Select the shapes that have at least one pair of parallel sides. Mark all that apply.



Name _____

Define Quadrilaterals

I Can use sides and angles to help me describe quadrilaterals.

Florida's B.E.S.T.

- Geometric Reasoning 3.GR.1.2
- Mathematical Thinking & Reasoning
MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1



UNLOCK the Problem

Quadrilaterals are named by their sides and their angles.

Describe quadrilaterals.

quadrilateral

_____ sides
_____ angles



trapezoid

at least _____ pair of opposite sides that are parallel
lengths of sides could be the same



parallelogram

_____ pairs of opposite sides that are parallel

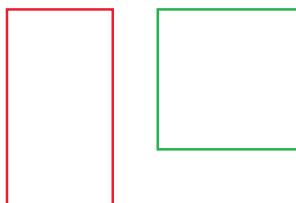


rectangle

_____ pairs of opposite sides that are parallel

_____ pairs of sides that are of equal length

_____ right angles



square

_____ pairs of opposite sides that are parallel

_____ sides that are of equal length

_____ right angles



rhombus

_____ pairs of opposite sides that are parallel

_____ sides that are of equal length



Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Why can a square also be named a rectangle or a rhombus?

Share and Show



Look at the quadrilateral at the right.

- Outline each pair of opposite sides that are parallel with a different color. How many pairs of opposite sides appear to

be parallel? _____

- Look at the parallel sides you colored.

The sides in each pair are of _____ length.



Think: All the angles are right angles.

- ✓ Name the quadrilateral in as many ways as you can.

Circle all the words that describe the quadrilateral.

4.



parallelogram

rhombus

square

trapezoid

5.



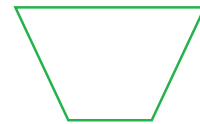
rhombus

quadrilateral

square

parallelogram

✓ 6.



parallelogram

rhombus

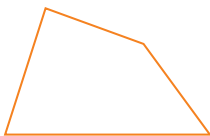
trapezoid

quadrilateral

On Your Own

Circle all the words that describe the quadrilateral.

7.



parallelogram

trapezoid

quadrilateral

rhombus

8.



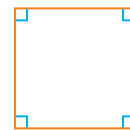
rectangle

parallelogram

trapezoid

square

9.



parallelogram

square

rectangle

rhombus

Math Talk

MTR 5.1 Use patterns and structure.

How can you have a rhombus that is not a square?

Name _____

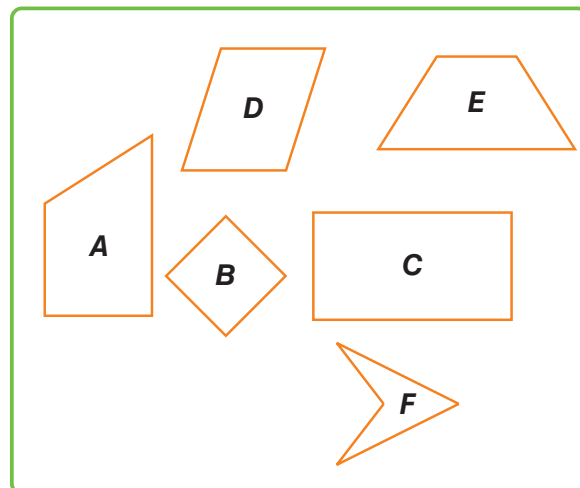
Problem Solving • Applications

Use the quadrilaterals at the right for Problems 10–12.

10. Which quadrilaterals appear to have 4 right angles?

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

12. Which quadrilaterals appear to have no right angles?



Write *all* or *some* to complete the sentence for Problems 13–18.

13. The opposite sides of _____ rectangles are parallel.

14. _____ sides of a rhombus are the same length.

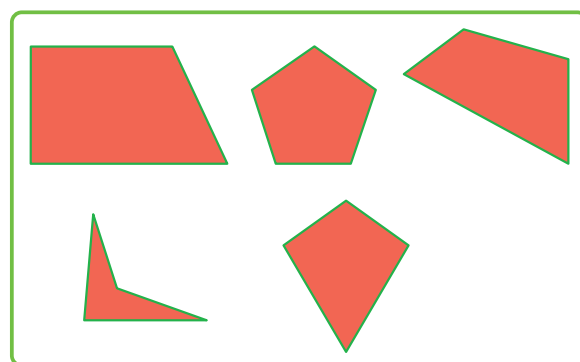
15. _____ squares are rectangles.

16. _____ rhombuses are squares.

17. _____ quadrilaterals are polygons.

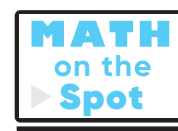
18. _____ polygons are quadrilaterals.

19. **MTR** Circle the shape at the right that is not a quadrilateral. Explain your choice.



20. I am a polygon that has 4 sides and 4 angles. At least one of my angles is less than a right angle. Circle all the shapes that I could be.

quadrilateral parallelogram square rhombus trapezoid



21. Identify the quadrilateral that can have two pairs of parallel sides and no right angles.

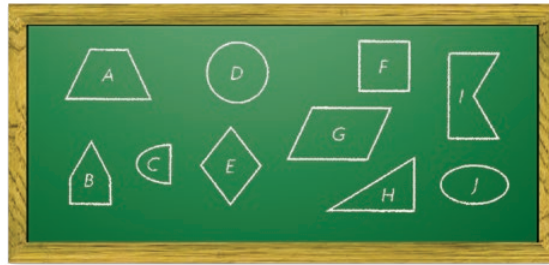
(A) rhombus (B) square (C) rectangle

Cross-Curricular: Science

Compare and Contrast

When you *compare*, you look for ways that things are alike. When you *contrast*, you look for ways that things are different.

Mr. Ramirez drew some shapes on the board. He asked the class to tell how the shapes are alike and how they are different.



Complete the sentences.

- Shapes _____, _____, _____, _____, _____, _____, and _____ are polygons.
- Shapes _____, _____, and _____ are not polygons.
- Shapes _____, _____, _____, and _____ are quadrilaterals.
- Shapes _____, _____, and _____ appear to have only 1 pair of opposite sides that are parallel.
- Shapes _____, _____, and _____ appear to have 2 pairs of opposite sides that are parallel.
- All 4 sides of shapes _____ and _____ appear to be the same length.
- In these polygons, all sides do not appear to be the same length. _____
- These shapes can be called rhombuses. _____
- Shapes _____ and _____ are quadrilaterals but cannot be called rhombuses.
- Shape _____ is a rhombus and can be called a square.

Name _____

Chapter Review

1. Circle the words that describe the angle marked in this shape.

right angle greater than right angle less than right angle

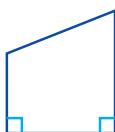


2. Circle the words that describe the sides marked in this polygon.

parallel intersecting perpendicular



3. Mikael saw a painting that included this shape.



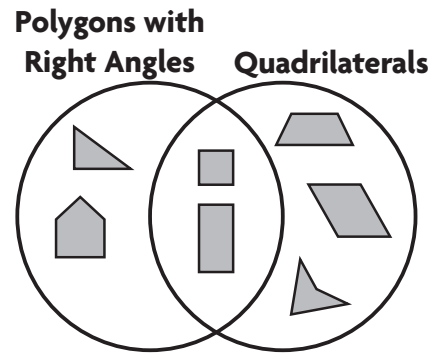
For problems 3a–3d, choose True or False for each statement about the shape.

- | | | |
|--|----------------------------|-----------------------------|
| 3a. The shape has no right angles. | <input type="radio"/> True | <input type="radio"/> False |
| 3b. The shape has 2 angles greater than a right angle. | <input type="radio"/> True | <input type="radio"/> False |
| 3c. The shape has 2 right angles. | <input type="radio"/> True | <input type="radio"/> False |
| 3d. The shape has 1 angle greater than a right angle. | <input type="radio"/> True | <input type="radio"/> False |

4. Fran used a Venn diagram to sort shapes.

Part A

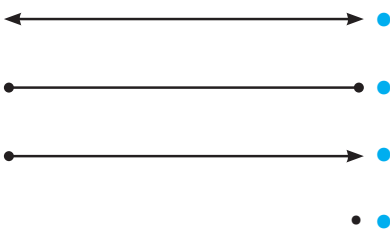
Draw another plane shape that belongs inside the left circle of the diagram but NOT in the section where the circles overlap.



Part B

How can you describe the shapes in the section where the circles overlap?

5. Match each object in the left column with its name in the right column.



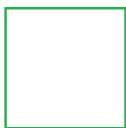
- point
- line
- ray
- line segment

6. Describe the angles and sides of this triangle.



Name _____

7. Which words describe this shape. Mark all that apply.



rectangle

rhombus

quadrilateral

square

(A)

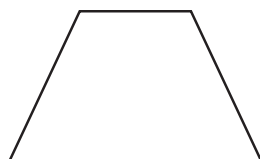
(B)

(C)

(D)

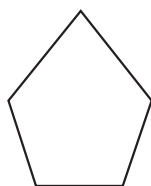
8. How many line segments does each shape have?

8a.



_____ line segments

8b.



_____ line segments

9. Han drew a triangle with 1 angle greater than a right angle.

For Problems 9a–9d, choose Yes or No to tell whether the triangle could be the triangle Han drew.

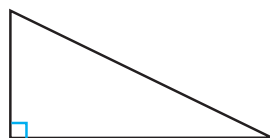
9a.



☐ Yes

☐ No

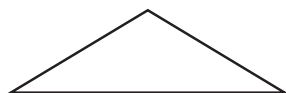
9b.



☐ Yes

☐ No

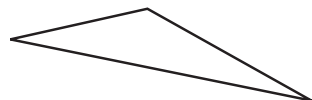
9c.



☐ Yes

☐ No

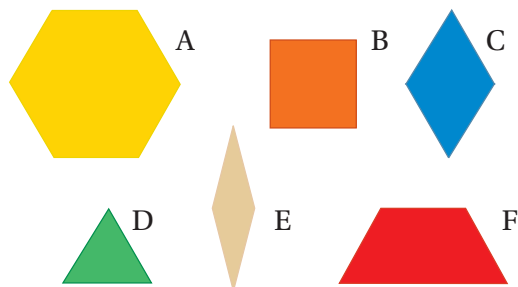
9d.



☐ Yes

☐ No

10. Look at this group of polygons.



Part A

To answer each question, name each polygon by writing its letter.

10a. Which polygons appear to have at least 1 pair of parallel sides? _____

10b. Which polygons appear to have perpendicular sides? _____

10c. Which polygons have intersecting sides? _____

Part B

List as many polygons as possible that appear to fit into each category. Use the letters of the polygons for your answers.

10d. rectangle _____

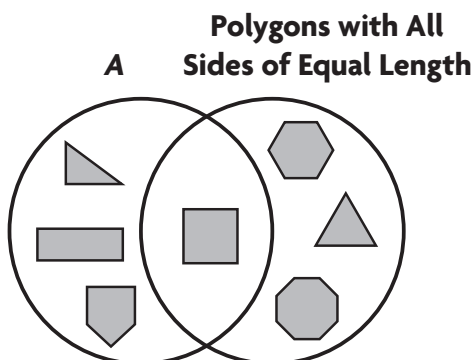
10e. trapezoid _____

10f. parallelogram _____

11. Teresa drew a quadrilateral that had 4 sides of equal length and no right angles. What quadrilateral did she draw?

Name _____

12. Rhea used a Venn diagram to sort shapes. What label could she use for circle *A*?



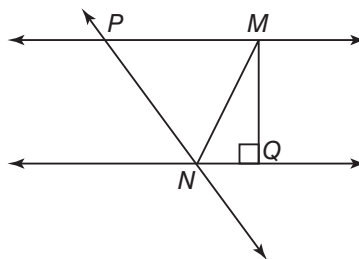
13. Use the figure for problems 13a–13d.

13a. Name a ray. _____

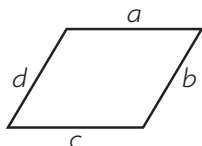
13b. Name a line segment. _____

13c. Name a point. _____

13d. Name a line. _____



14. Brad drew a quadrilateral. Select the pairs of sides that appear to be parallel. Mark all that apply.



- | | |
|-----------------|-----------------|
| (A) a and b | (C) c and a |
| (B) b and d | (D) d and c |

15. Circle all the words that describe the quadrilateral.

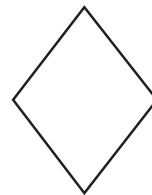
rectangle

parallelogram

square

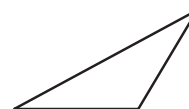
rhombus

quadrilateral



16. The triangle at the right has one angle greater than a right angle. What statements describe the other angles? Mark all that apply.

- ☐ A At least one is less than a right angle.
- ☐ B One is a right angle.
- ☐ C Both are less than a right angle.
- ☐ D One is greater than a right angle.



17. Write *all* or *some* to complete the sentences for problems 17a–17c.

17a. The opposite sides of _____ rhombuses are parallel.

17b. _____ squares are rhombuses.

17c. _____ rectangles are squares.

18. For problems 18a–18d, choose True or False for each description of a ray.



- | | | |
|-------------------------------|----------------------------|-----------------------------|
| 18a. straight | <input type="radio"/> True | <input type="radio"/> False |
| 18b. has 2 endpoints | <input type="radio"/> True | <input type="radio"/> False |
| 18c. part of a line | <input type="radio"/> True | <input type="radio"/> False |
| 18d. continues in 1 direction | <input type="radio"/> True | <input type="radio"/> False |