Chapter 11

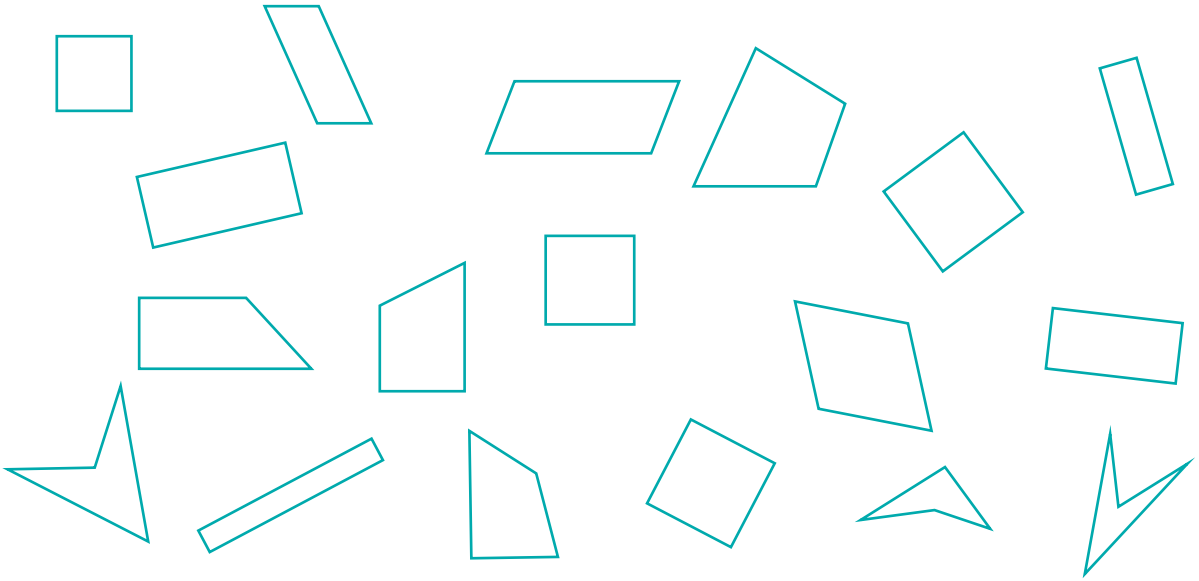
Lesson 1

Name _____ Date/Time _____

Classifying Polygons by the Number of Right Angles

NCTM Standards 3, 4, 6, 7, 8, 9, 10

1. Circle the figures with four right angles.

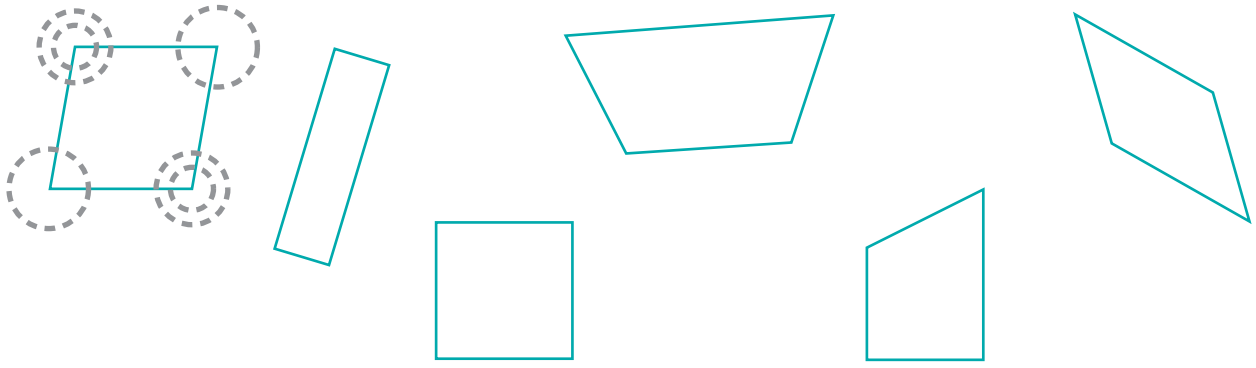


2. How can you describe the figures you circled in Problem 1?

_____

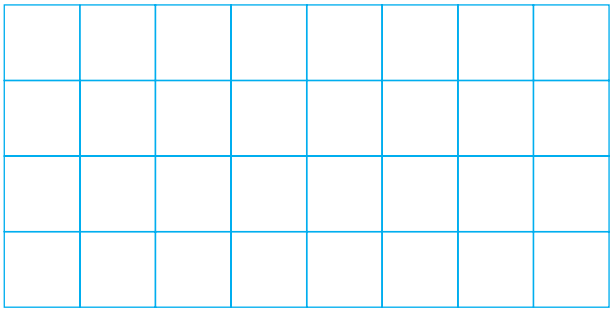
3. Draw one circle around the angles that are smaller than a right angle.

4. Draw two circles around the angles that are larger than a right angle.



Draw a figure for each given area or perimeter and write the number of right angles for the figure. Each side of a square in the grid is 1 centimeter (cm).

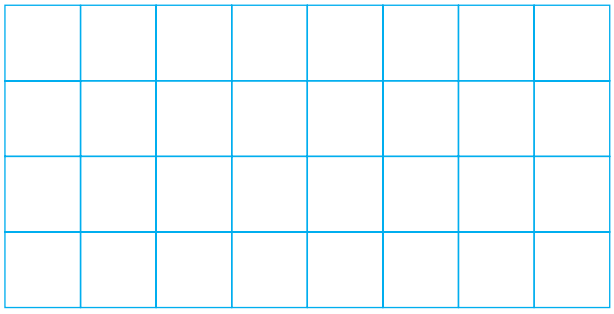
5 Area is 5 square cm.



Inside the figure, there are

_____ right angles.

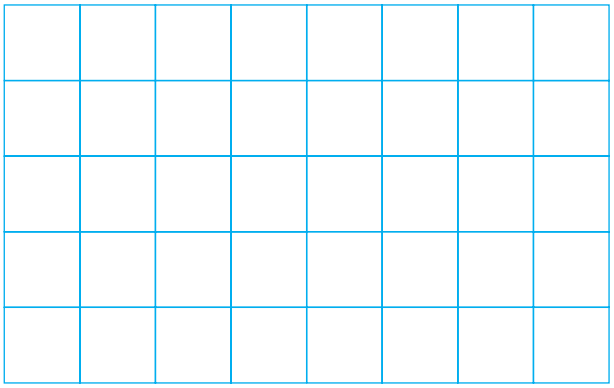
6 Perimeter is 6 cm.



Inside the figure, there are

_____ right angles.

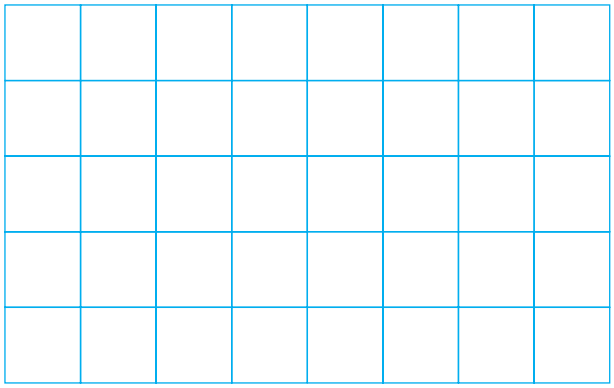
7 Area is 13 square cm.



Inside the figure, there are

_____ right angles.

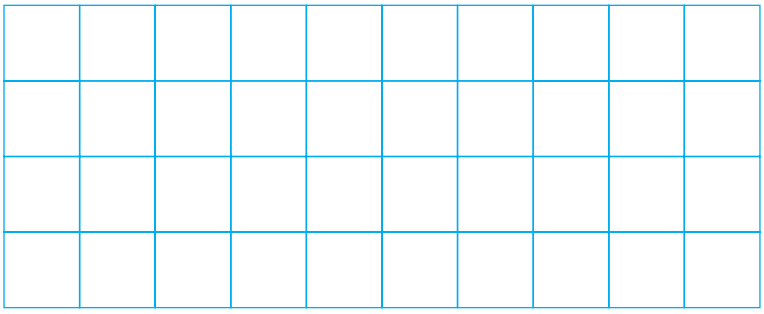
8 Perimeter is 12 cm.



Inside the figure, there are

_____ right angles.

9 Challenge Draw a figure with an area of $5\frac{1}{2}$ square cm.



Inside the figure, there are

_____ right angles.

Chapter 11

Lesson 2

Name _____ Date/Time _____

Classifying Polygons Using Pairs of Parallel Sides

NCTM Standards 3, 6, 7, 8, 9, 10

Complete the description of each figure by filling in the missing numbers.

1

4 sides

2 pair(s) of parallel sides

4 right angle(s)

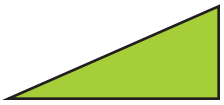
2

____ sides

____ pair(s) of parallel sides

____ right angle(s)

3

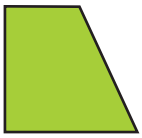


____ sides

____ pair(s) of parallel sides

____ right angle(s)

4

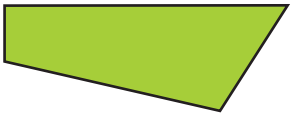


____ sides

____ pair(s) of parallel sides

____ right angle(s)

5

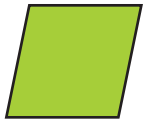


____ sides

____ pair(s) of parallel sides

____ right angle(s)

6

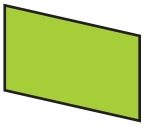


____ sides

____ pair(s) of parallel sides

____ right angle(s)

7

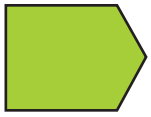


____ sides

____ pair(s) of parallel sides

____ right angle(s)

8



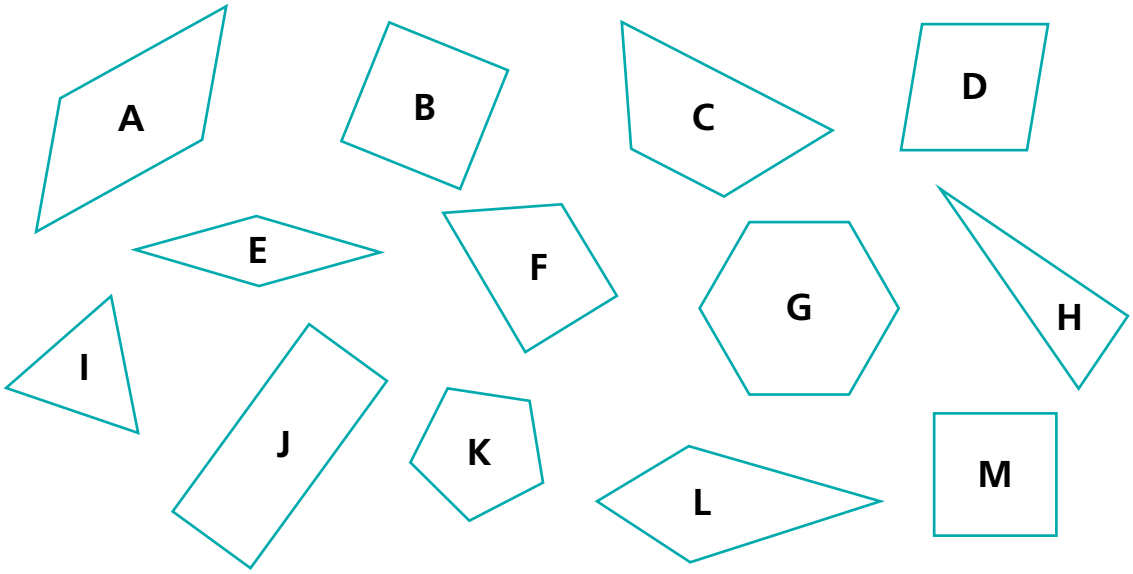
____ sides

____ pair(s) of parallel sides

____ right angle(s)

9 Write the letter of each figure in the section of the table that describes its attributes.

	Fewer Than 2 Pairs of Parallel Sides	Exactly 2 Pairs of Parallel Sides	More Than 2 Pairs of Parallel Sides
No Right Angle		A,	
One or More Right Angles			



10 How are figures G and K alike? How are they different?

_____

_____

11 **Challenge** I have exactly 4 sides. They are all straight. I have exactly 2 pairs of parallel sides. I have at least 1 right angle. What shape am I?

_____

Draw what I might look like.

Chapter 11

Lesson 3

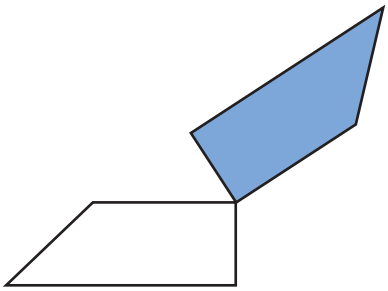
Name _____ Date/Time _____

Identifying Congruent Figures

NCTM Standards 3, 6, 7, 8, 9, 10

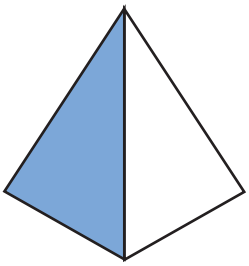
How should each white figure be moved so it fits on the blue figure? Use *slide*, *flip*, or *turn*.

1

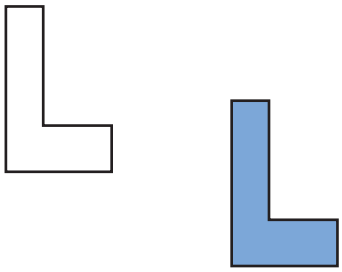


turn

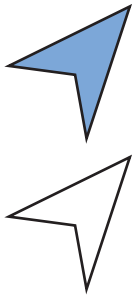
2



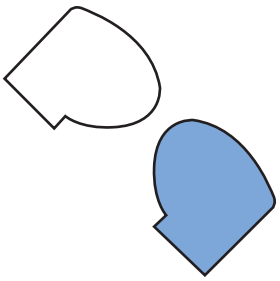
3



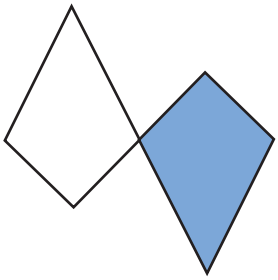
4



5



6



7 Choose one of the problems above. Describe how you decided if it was a slide, flip, or turn.

_____

Draw and connect the points on each grid. Remember, the first number tells how far to move right, and the second number tells how far to move up.

8 Place point *A* at (2,4).

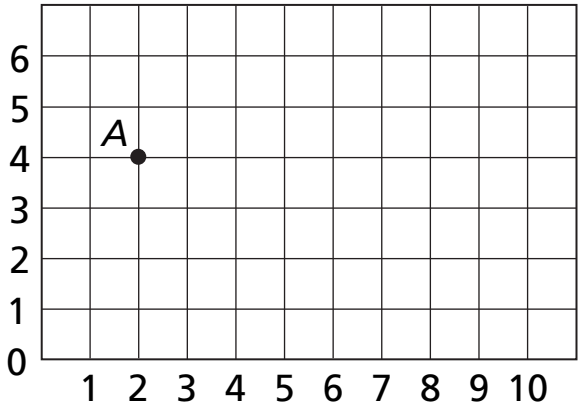
Place point *B* at (8,2).

Place point *C* at (4,1).

Place point *D* at (1,2).

Draw $\overline{AB}$ by connecting *A* and *B*.

Draw $\overline{BC}$, $\overline{CD}$, and $\overline{DA}$.



9 Add 2 to both numbers in each pair above.

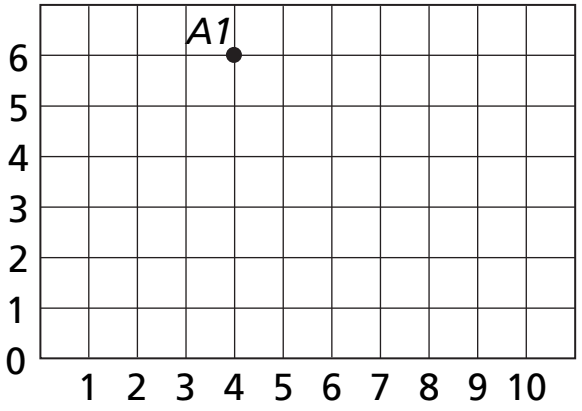
A1 is at (4,6).

B1 is at (____, ____).

C1 is at (____, ____).

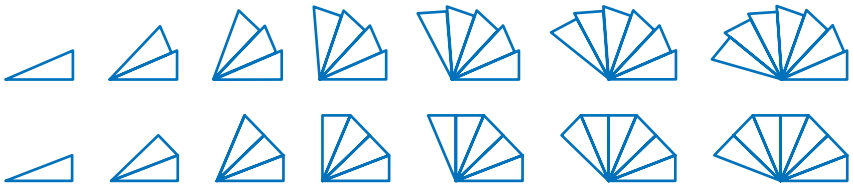
D1 is at (____, ____).

Draw $\overline{A1B1}$, $\overline{B1C1}$, $\overline{C1D1}$, and $\overline{D1A1}$.



10 Are the two figures **congruent**? _____

11 Challenge Compare these two patterns. Describe how they are alike, and how they are different. You can use the words *flip*, *turn*, and *slide* in your answer.



_____

_____

Chapter 11

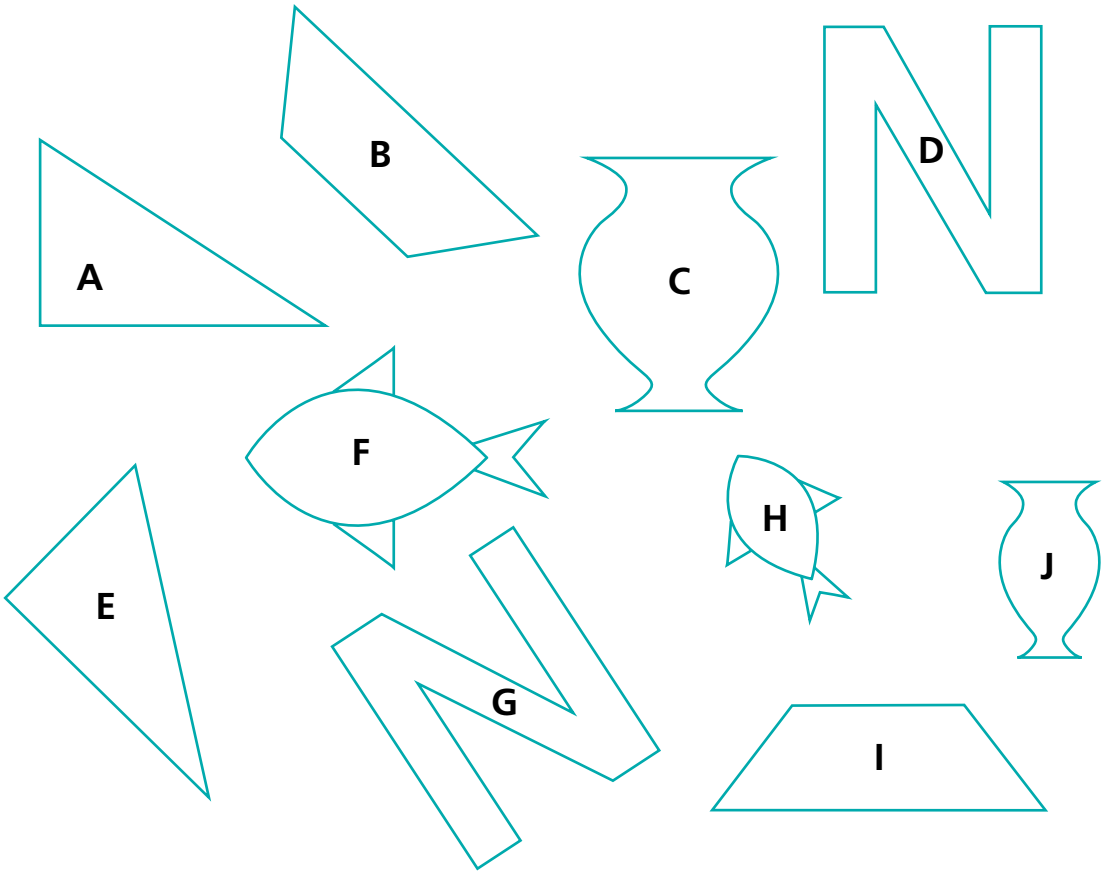
Lesson 4

Name _____ Date/Time _____

Working with Lines of Symmetry

NCTM Standards 3, 6, 7, 8, 9, 10

For 1 to 5, use the lettered figures below.



1. Which figures have at least 1 line of symmetry? _____

2. Which pairs of figures are congruent?

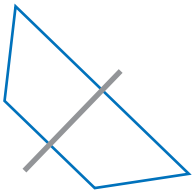
_____ and _____ _____ and _____ _____ and _____

3. Which figures are quadrilaterals? _____

4. Which figures have at least 1 right angle? _____

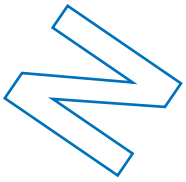
5. Which figures have parallel lines? _____

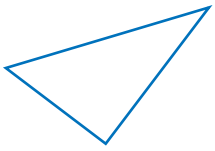
Draw a line to show where each figure could be folded so that both parts match exactly. If the figure does not have a line of symmetry, leave it blank.

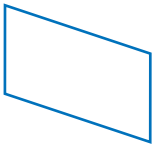
6 

7 

8 

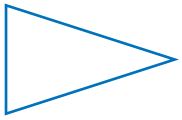
9 

10 

11 

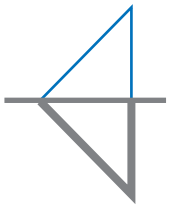
12 

13 

14 

15 

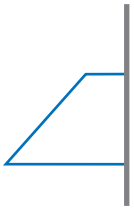
Only part of each figure is drawn. Complete each figure so that the gray line is a line of symmetry. Label each completed figure *triangle, quadrilateral,* or *pentagon.*

16 

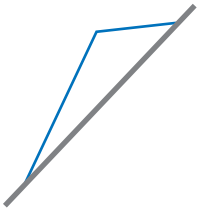
_____

17 

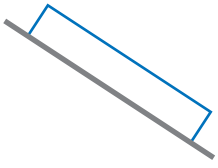
_____

18 

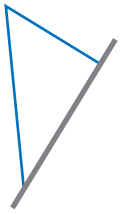
_____

19 

_____

20 

_____

21 

_____

22 **Challenge** What figures can you make by placing a mirror in different positions on the capital letter M? Draw two or three you discovered.

Chapter 11

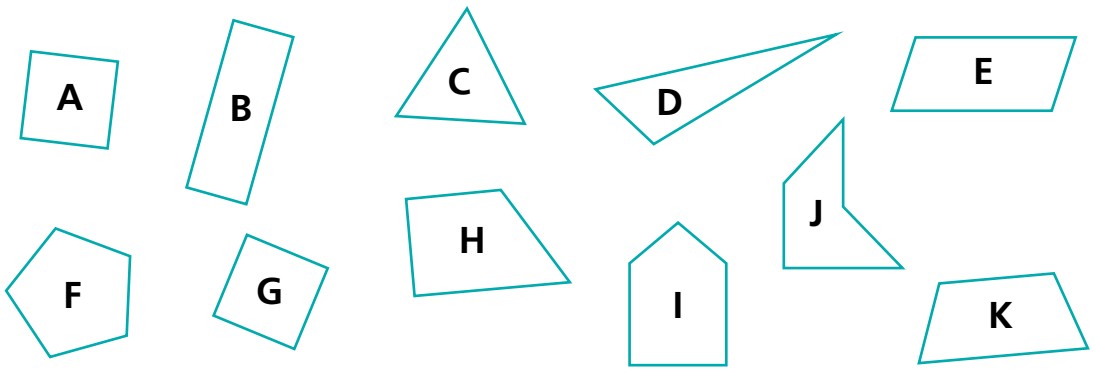
Lesson 5

Name _____ Date/Time _____

Identifying Attributes of Two-Dimensional Figures

NCTM Standards 3, 6, 7, 8, 9, 10

List all the figures that match the description.



1. I have 3 sides. _____

2. I'm a quadrilateral. _____

3. I'm a pentagon. _____

4. I have at least 1 line of symmetry. _____

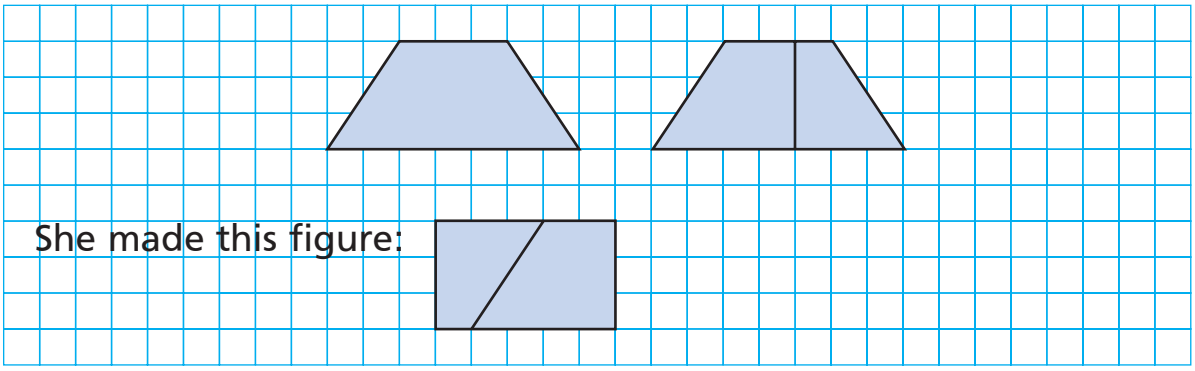
5. I have 4 right angles. _____

6. I have at least 1 pair of parallel sides. _____

7. I have 3 angles that are smaller than a right angle. _____

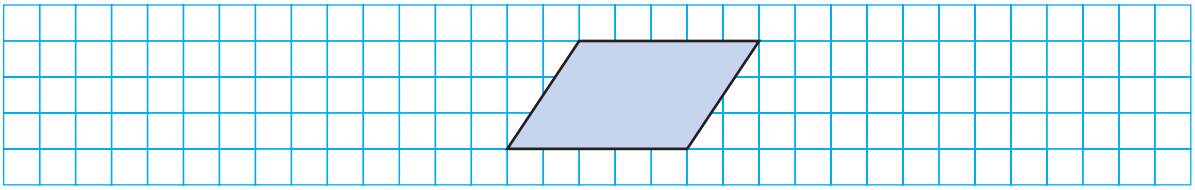
8. I have at least 1 angle that is larger than a right angle. _____

9 Mandy cut the trapezoid and rearranged the two parts.

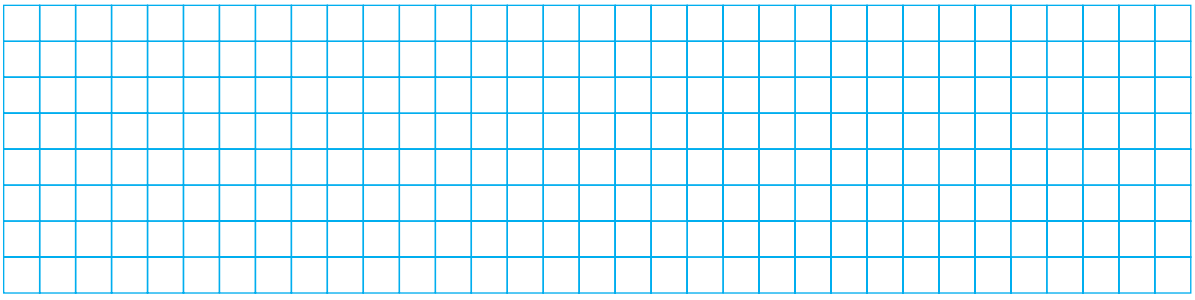


What is the area of the trapezoid? _____ square units

10 Simon cut this parallelogram into two parts and rearranged the parts to form a rectangle.



Draw a picture to show what he might have done.



What is the area of the parallelogram? _____ square units

11 **Challenge** Explain how you found the area of the parallelogram.

_____

_____

_____

Chapter 11

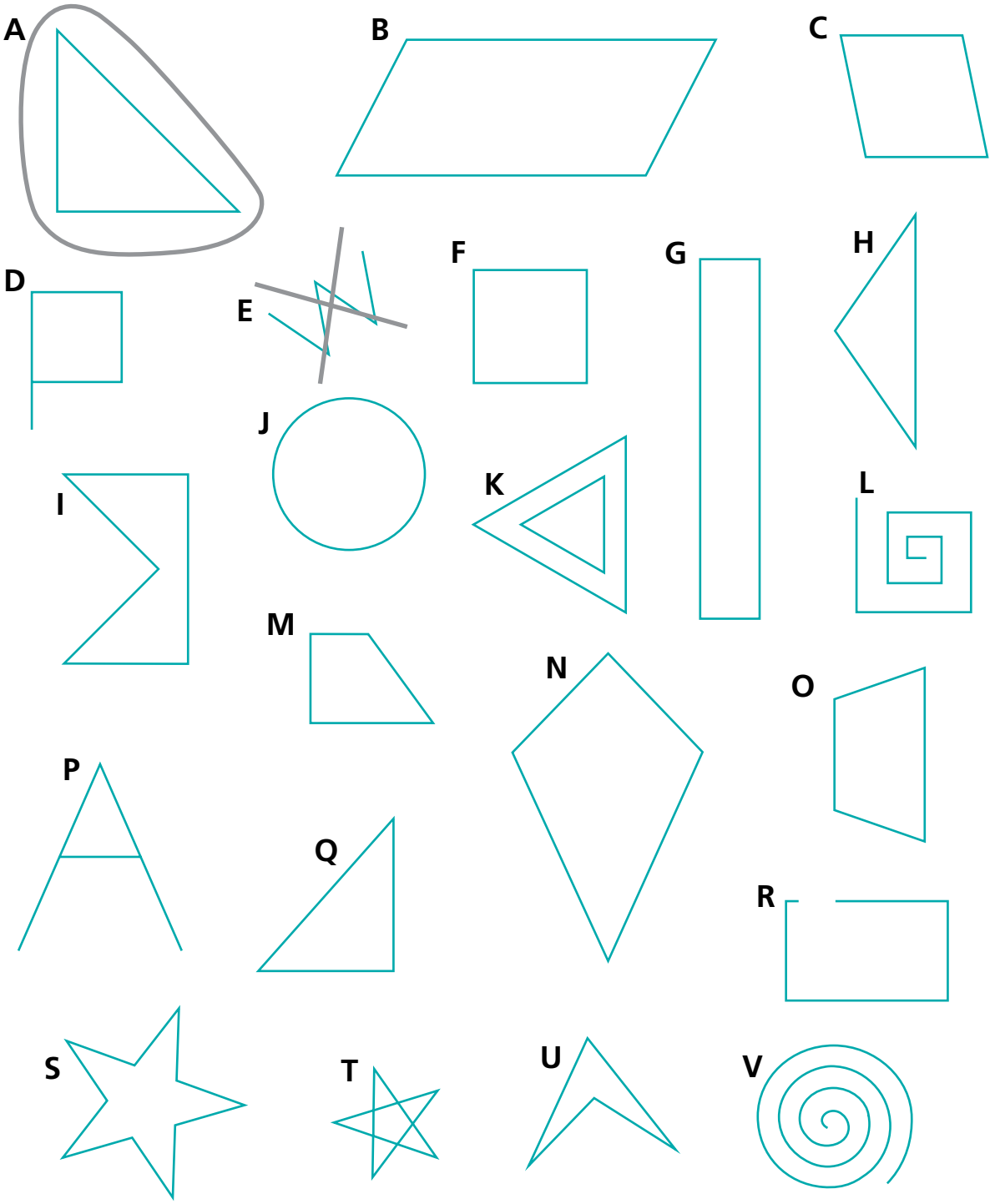
Lesson 6

Name _____ Date/Time _____

Identifying and Defining Polygons

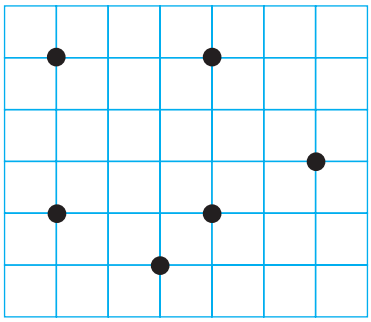
NCTM Standards 3, 6, 7, 9, 10

1 Circle the polygons. Cross out the figures that are **NOT** polygons.

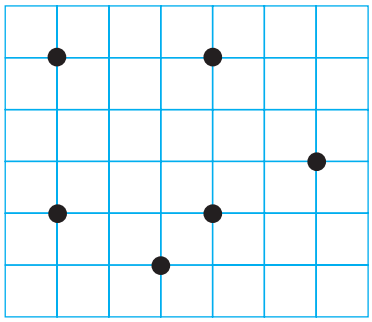


Connect some of the points to make the specified figures.

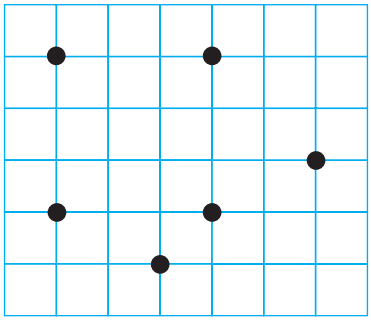
2 Choose at least 4 of the points and connect them to make a polygon.



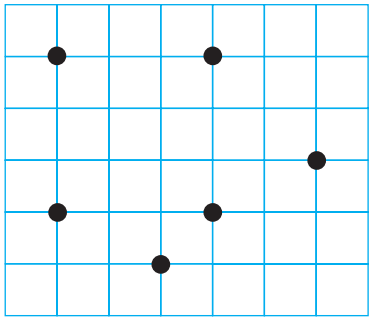
3 Connect the same points you chose for Problem 2 in a way that does **NOT** make a polygon.



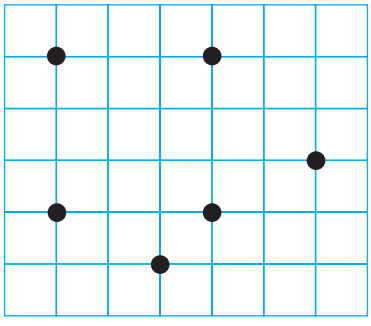
4 Choose at least 4 of the points and connect them to make a polygon with at least 1 pair of parallel sides.



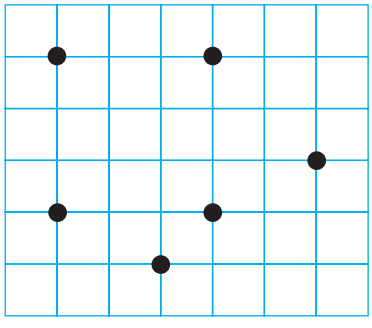
5 Choose points and connect them to make a triangle with a right angle.



6 Choose at least 4 points and connect them to make a polygon with exactly 2 right angles.



7 **Challenge** Choose points and connect them to make a pentagon with exactly 1 right angle.



Chapter 11

Lesson 7

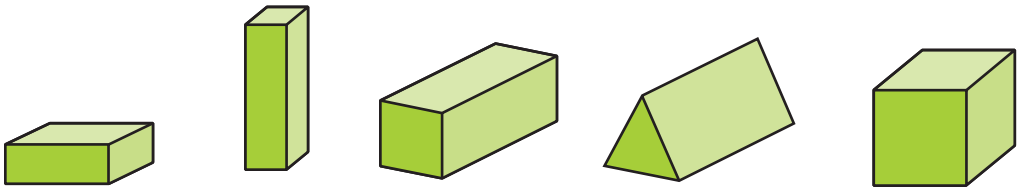
Name _____ Date/Time _____

Making a Figure Zoo

NCTM Standards 3, 6, 7, 8, 9, 10

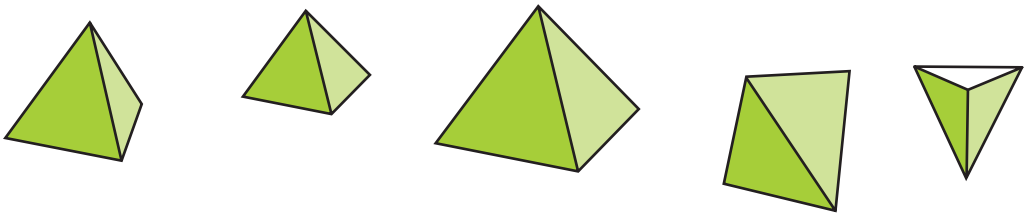
Label the groups of figures as *pyramids, prisms,* or *cones.*

1



These figures are all _____.

2



These figures are all _____.

3

These figures are all _____.

4 Are all of the faces of a pyramid polygons? _____

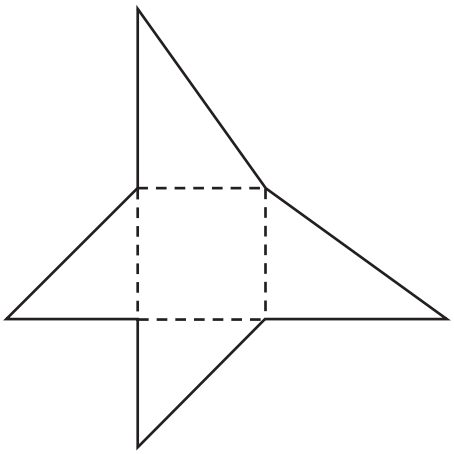
Are all of the faces of a prism polygons? _____

5 How is a cone different from a prism and a pyramid?

_____

Answer the questions about the three-dimensional figures you can make by folding these nets.

6



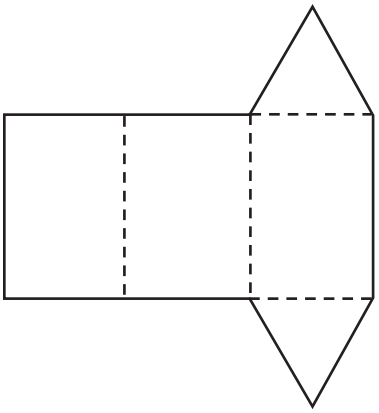
How many faces will be triangles? _____

How many faces will be squares? _____

The three-dimensional figure will be a: (circle one)

Pyramid Prism

7



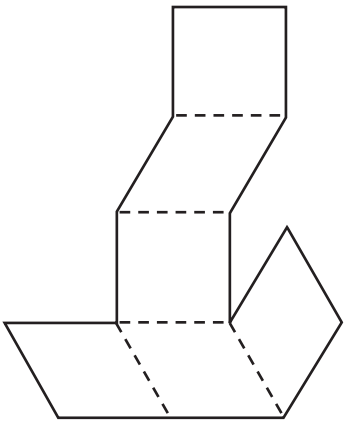
How many faces will be triangles? _____

How many faces will be rectangles? _____

The three-dimensional figure will be a:

Pyramid Prism

8 Challenge



How many faces will be squares? _____

The three-dimensional figure will be a:

Pyramid Prism

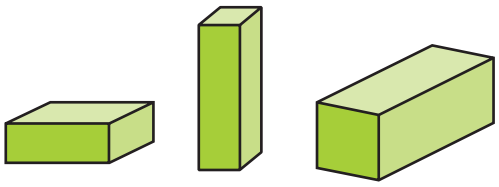
Chapter 11
Lesson 8

Name _____ Date/Time _____

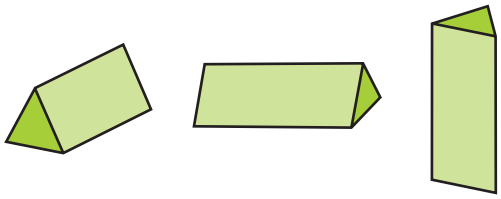
Figure Safari

NCTM Standards 3, 6, 7, 9, 10

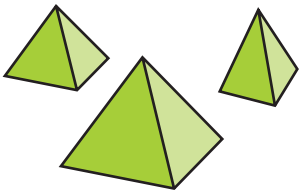
Write the name of the three-dimensional figure that matches each clue. Use the names below. Some names will not be used.



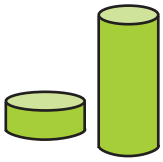
rectangular prisms



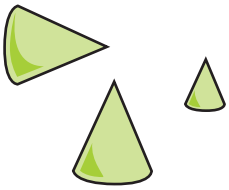
triangular prisms



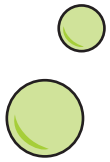
pyramids



cylinders



cones



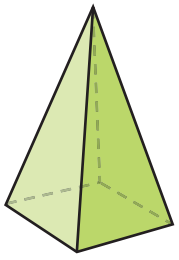
spheres

Clue	Name
1 ✔ I have more than 1 pair of parallel faces.	
2 ✔ More than 2 of my faces are triangles.	
3 ✔ I have exactly 2 flat surfaces.	
4 ✔ I have 9 edges.	

Use the figures from the class Figure Zoo. Write the letters of the figures that match each set of clues.

Clues	Figures
5 ✔ One face is flat on the table. ✔ My top is also level. ✔ Those 2 top and bottom faces are not the same size.	
6 ✔ Some of my faces have exactly 1 pair of parallel sides. ✔ All my other faces are rectangles.	
7 ✔ All my faces are parallelograms. ✔ Some, but not all, of my faces are squares.	
8 ✔ At least 2 of my faces are quadrilaterals. ✔ At least 2 of my faces are triangles.	
9 ✔ I have fewer than 12 edges.	

10 **Challenge** Use the diagram to complete the sentences.



I have _____ triangular faces.

I have _____ rectangular face.

I am a _____.

Chapter 11

Lesson 9

Name _____ Date/Time _____

Describing Three-Dimensional Figures

NCTM Standards 3, 7, 8, 9, 10

Tape or glue a small copy of a net for a three-dimensional figure here. You can use the net to help answer the questions about the three-dimensional figure.

1. How many faces does the three-dimensional figure have? _____

2. Describe the shapes of the faces.

_____

_____

_____

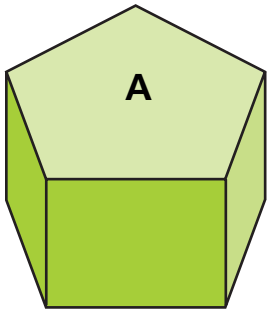
_____

3. How many of the faces have at least 1 line of symmetry? _____

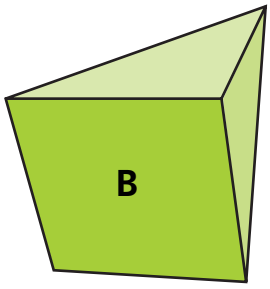
4. How many of the faces have at least 2 lines of symmetry? _____

5. On the copy of the net above, shade two congruent faces. If no faces are congruent, write *none* on the line. _____

Write the number for each figure in the blank.



Prism



Pyramid

---

6 How many parallel faces does the prism have? _____

Face A has _____ sides.

There are _____ vertices on this prism.

_____ × (the number of sides on the top face) (the number of vertices on the prism)

---

7 How many vertices are on the top of the pyramid? _____

Face B has _____ sides.

There are _____ vertices on this pyramid.

_____ + (the number of sides on the bottom face) (the number of vertices on the pyramid)

8 **Challenge** Describe a difference between a prism and a pyramid.

_____

_____

_____

Chapter 11

Lesson 10

Name _____ Date/Time _____

Problem Solving Strategy

Look for a Pattern

NCTM Standards 3, 6, 7, 8, 9, 10

Understand
Plan
Solve
Check

1 These figures belong:

These figures do **NOT** belong:

Which figures belong?

2 Seven friends are playing a game. Each person gets one of the figures shown below. The person that gets the figure that does not belong will be knocked out of the game. Which figure does **NOT** belong? Explain your answer.

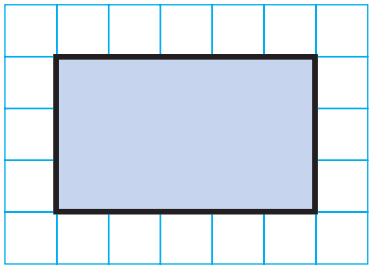
3 Richard used a pattern to draw lines inside each large triangle.

What is Richard's pattern?

Problem Solving Test Prep

Choose the correct answer.

1 Jerome shaded some squares on a piece of grid paper.



What is the area of the shaded part of the paper?

A. 8 square units

B. 10 square units

C. 15 square units

D. 16 square units

2 Mr. Smith's third-grade classroom has 4 rows of desks. There are 7 desks in each row. How many desks are in Mr. Smith's classroom?

A. 11 desks **C.** 21 desks

B. 14 desks **D.** 28 desks

3 The pictograph shows what is for sale at the bakery.

BAKERY ITEMS	
Cookies	● ● ● ● ● ●
Blueberry muffins	● ● ● ●
Lemon muffins	● ● ● ● ●

Key: Each ● = 2 items.

How many muffins are for sale?

A. 9 muffins **C.** 18 muffins

B. 16 muffins **D.** 36 muffins

4 Lena is twice as old as Jasmine. Trisha is 5 years older than Jasmine. Trisha is 12. How old is Lena?

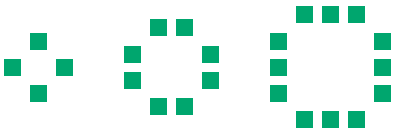
A. 14 years old **C.** 9 years old

B. 12 years old **D.** 7 years old

Show What You Know

Solve the problem. Explain your answer.

5 Edward made this pattern with square tiles.



Draw the next figure in Edward's pattern.

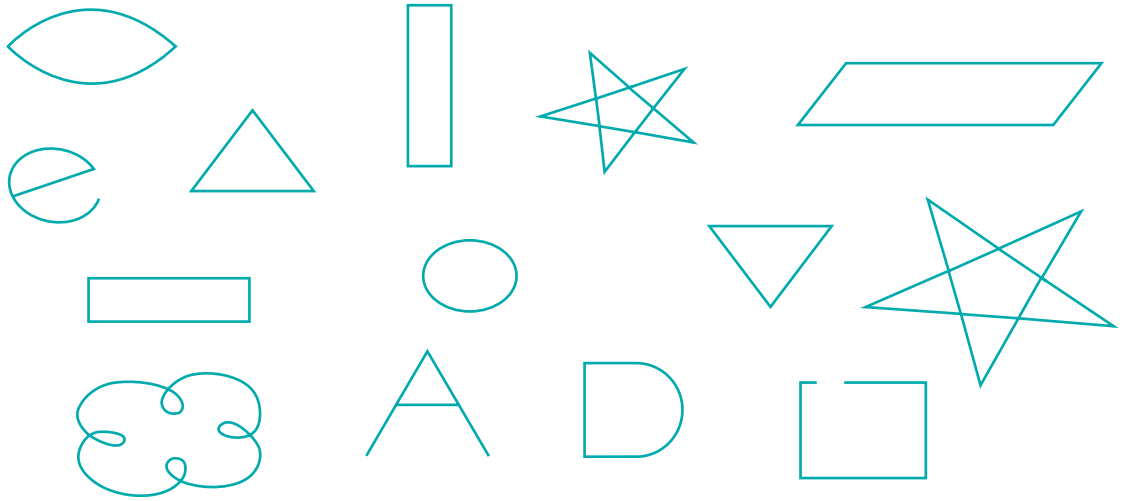
Explain how you know your answer is correct.

Name _____ Date/Time _____

Chapter 11 Review/Assessment

NCTM Standards 3, 6, 7, 10

1 Draw a line to connect congruent figures. Circle the polygons. Lessons 3 and 6



Complete the description of the figure by filling in the missing numbers. Lessons 1, 2, 4 and 5

2

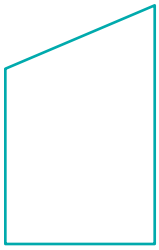
_____ sides

_____ pair(s) of parallel sides

_____ right angles

_____ line(s) of symmetry

3



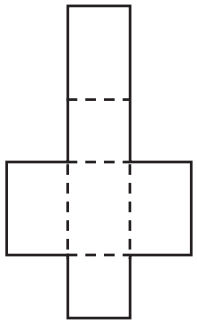
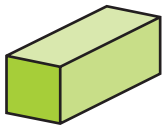
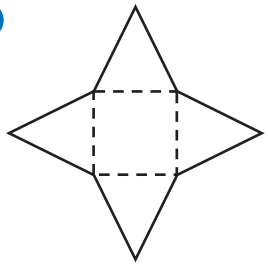
_____ sides

_____ pair(s) of parallel sides

_____ right angles

_____ line(s) of symmetry

Complete the description of the figure by filling in the blanks. Lessons 7, 8 and 9

Net	Three-Dimensional Figure	Description
4 		_____ faces _____ edges _____ vertices This figure is a _____.
5 		_____ faces _____ edges _____ vertices This figure is a _____.

Read the clues. Then write *prism, pyramid,* or *cone.* Lesson 8

Clues	Name
6 ✓ My two parallel faces are triangles. ✓ All my other faces are rectangles.	
7 ✓ I have 4 faces. ✓ My faces are all triangles.	

8 Lon wants all the figures in his collection to have at least 1 pair of parallel sides. Cross out the figure that does not belong in Lon's collection. Draw another figure that could be in Lon's collection. Lesson 10