Chapter 14

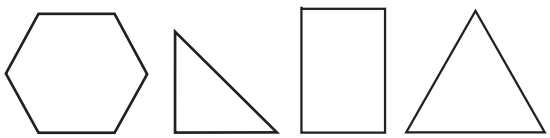
Name _____

Classify Two-Dimensional and Three-Dimensional Figures

Show What You Know

Plane Shapes

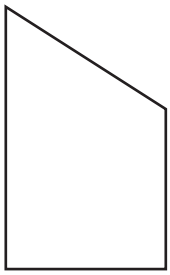
1. Circle the triangles.



2. Circle the rectangles.

Number of Sides Write the number of sides.

3.

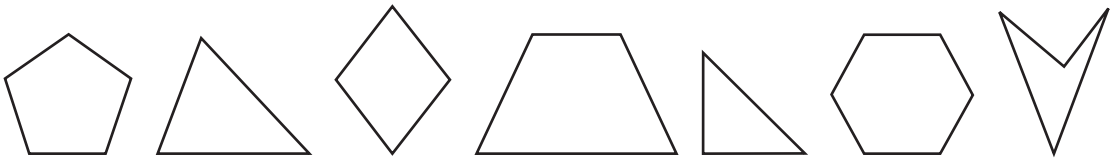


_____ sides

4.

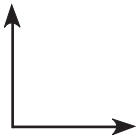
_____ sides

5. Circle the shapes that have less than 5 sides.



Types of Angles Classify each angle as acute, obtuse, right, or straight.

6.

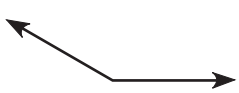


_____

7.

_____

8.



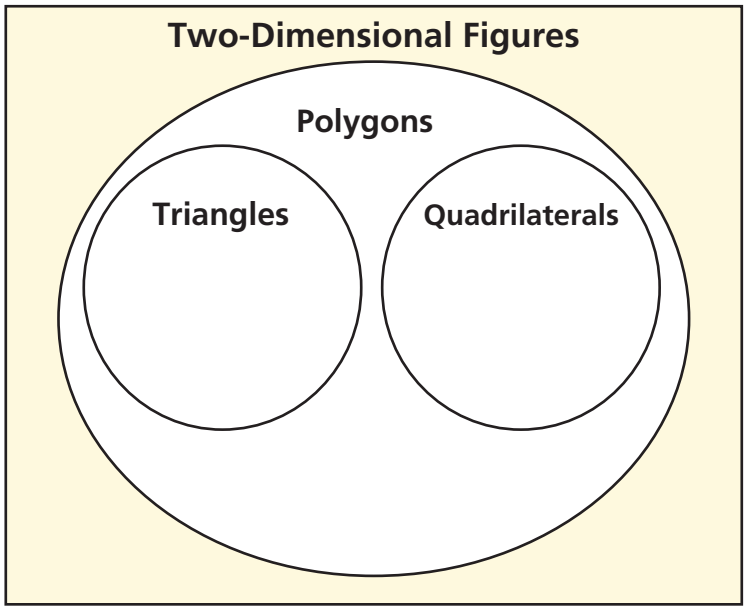
_____

Vocabulary Builder

Go Online For more help

Visualize It

Sort the checked words into the circle map.



Understand Vocabulary

Write the preview word that answers the riddle.

1. I am a solid figure with two bases that are the exact same shape and size and are connected with lateral faces that are rectangles. _____
2. I am a polygon in which all sides are the same length and all angles have the same measures. _____
3. I am a solid figure with faces that are polygons. _____
4. I am a polygon that connects with the bases of a polyhedron. _____

Connect to Vocabulary

Review Words

- ✓ acute triangle
- ✓ hexagon
- ✓ obtuse triangle
- ✓ octagon
- ✓ parallelogram
- polygon
- quadrilateral
- ✓ rectangle
- ✓ rhombus
- ✓ right triangle
- sphere
- ✓ trapezoid

Preview Words

- base
- equilateral triangle
- isosceles triangle
- lateral face
- polyhedron
- prism
- pyramid
- regular polygon
- scalene triangle

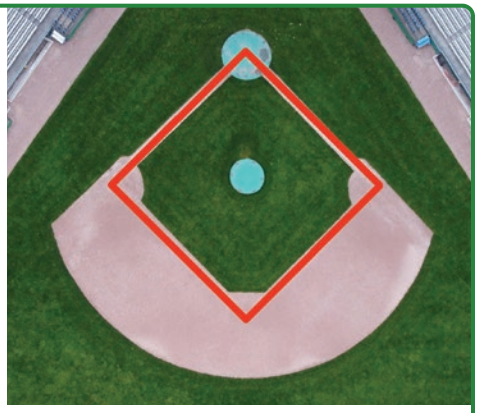
Name _____

Identify and Classify Two-Dimensional Figures

Florida's B.E.S.T.
- **Geometric Reasoning** 5.GR.1.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.5.1, MTR.7.1

I Can identify and classify triangles and quadrilaterals.

UNLOCK the Problem Real World



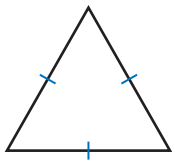
The path that a runner must complete in order to score a run forms a baseball diamond. What polygon do you see in the structure? How many sides, angles, and vertices does this polygon have?

A **polygon** is a closed plane figure formed by three or more line segments that meet at points called vertices. It is named by the number of sides and angles it has.

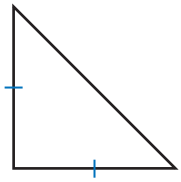
A polygon with 3 sides, 3 angles, and 3 vertices is called a triangle.

One Way

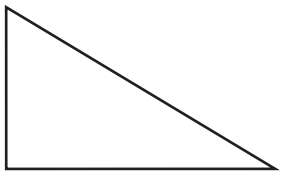
You can classify a triangle by its sides.



Equilateral triangle
3 sides of equal length



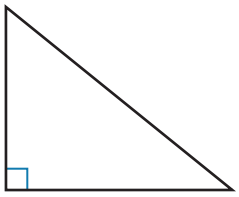
Isosceles triangle
2 sides of equal length



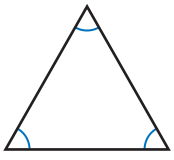
Scalene triangle
3 different side lengths

Another Way

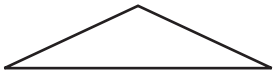
You can also classify a triangle by its angles.



Right triangle
1 right angle

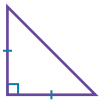


Acute triangle
3 acute angles



Obtuse triangle
1 obtuse angle

Example



This triangle is _____ because it has _____ sides of equal length. It is also a _____ triangle because it has _____ angle(s).

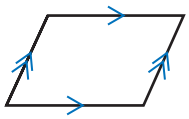
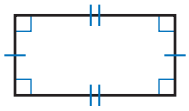
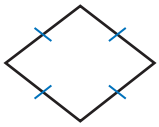
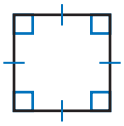
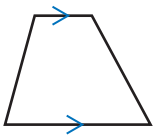
Math Talk

MTR 5.1 Use patterns and structure.

What pattern do you see among the number of sides, angles, and vertices a triangle has?

Try Another Problem

You can use attributes of quadrilaterals such as pairs of parallel sides, equal side lengths, and right angles to classify them.

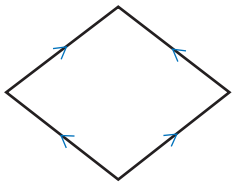
Quadrilateral	Attributes	Example
Parallelogram	Two pairs of parallel sides and opposite sides of the same length	
Rectangle	2 pairs of parallel sides, 4 right angles, and opposite sides of the same length	
Rhombus	Two pairs of parallel sides and 4 of the same length	
Square	2 pairs of parallel sides, 4 right angles, and 4 of the same length	
Trapezoid	At least 1 pair of parallel sides.	

Remember

The slashes indicate equal side lengths. The sides with the same number of slashes are the same length. The > indicate parallel sides.

Example

This polygon is a _____ because it has _____ of parallel sides and _____ sides of equal length.



What are some other names for this figure?

_____

A **regular polygon** has sides that are all of equal length and angles that all have the same measure.

Math Talk

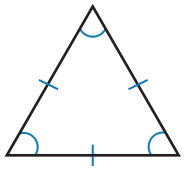
MTR 5.1 Use patterns and structure.

Why is a trapezoid a quadrilateral but not a parallelogram?

Share and Show

Math Board

1. Identify the polygon.



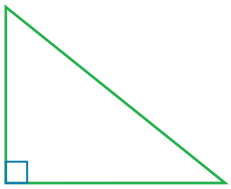
a. Give all possible names for the triangle. _____

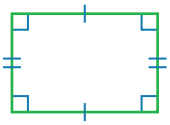
b. Do all sides have the same length and all angles measure the same? _____

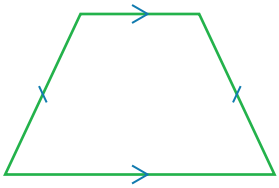
c. Is the polygon a regular polygon? _____

Name _____

List all possible names for the polygon.

2. 

3. 

4. 

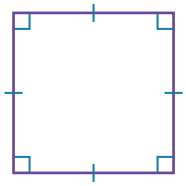
Math Talk

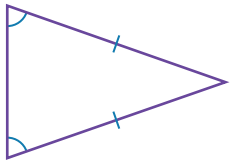
MTR 4.1 Engage in discussions on mathematical thinking.

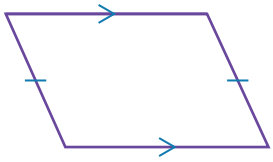
Why do all regular triangles have the same shape?

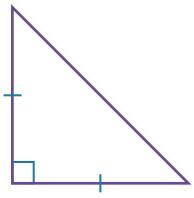
On Your Own

List all possible names for the polygon.

5. 

6. 

7. 

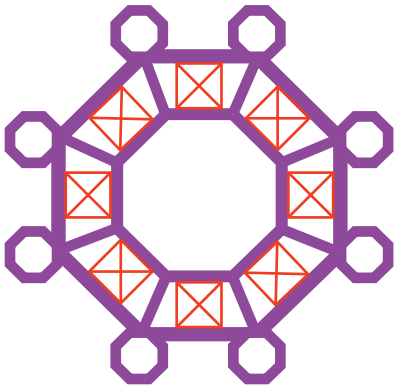
8. 

9. Compare the polygons shown in Problems 2 and 8. Describe how they are alike and how they are different.

Problem Solving · Applications Real World

The Castel del Monte in Apulia, Italy, was built more than 750 years ago. The fortress has one central building with eight surrounding towers.

For 10–11, use the Castel del Monte floor plan at the right.



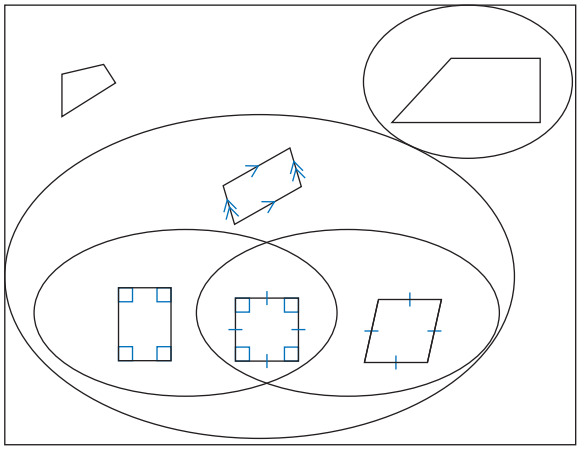
10. Which polygons in the floor plan have four sides of the same length and four angles with the same measure? How many of these polygons are there?

_____

11. Is there a quadrilateral in the floor plan that is not a regular polygon? Name the quadrilateral and tell how many of the quadrilaterals are in the floor plan.

_____

12. Complete the Venn diagram for quadrilaterals. Use *quadrilaterals, rhombus, parallelograms, squares, trapezoids,* and *rectangles*. Label each quadrilateral.



13. Explain why an equilateral triangle is always an isosceles triangle but an isosceles triangle is not always an equilateral triangle.

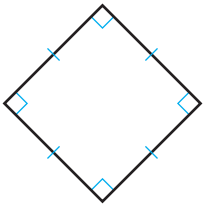
_____

_____

_____

_____

14. Pascale drew the figure shown. For 14a–14b, choose the values and term that correctly describe the figure Pascale drew.



14a. The figure has [4 / 6 / 12] sides and [4 / 6 / 8] angles.

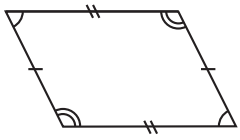
14b. The figure is a [regular triangle / regular quadrilateral].

Name _____

Identify and Classify Two-Dimensional Figures

Go Online
Interactive Examples

List all possible names for the polygon.

1. 

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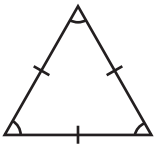
2. 

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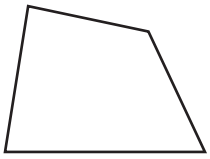
3. 

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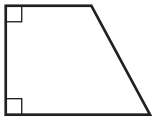
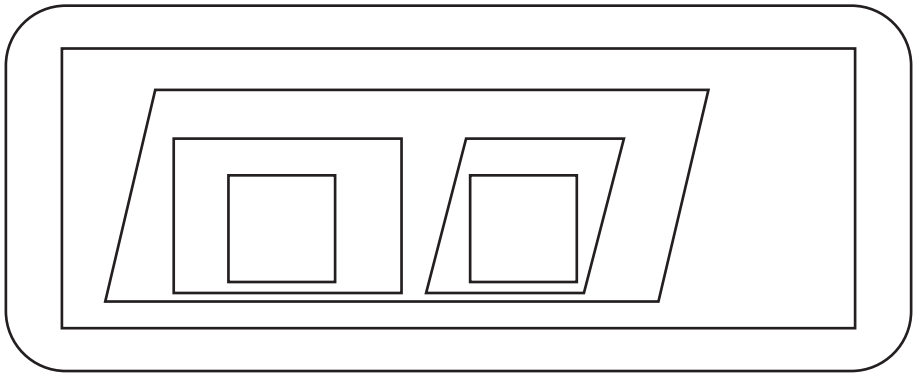
4. 

_____

Problem Solving Real World

5. Complete the diagram. Use *quadrilaterals, rhombuses, parallelograms, squares, polygons* and *rectangles*. You will use one quadrilateral more than once.



6. Which quadrilateral did you use more than once in Problem 5? Why?

_____

7. Sketch four points. Then, connect the points to form a closed plane figure. What kind of polygon did you draw?

_____

8. Sketch three points. Then, connect the points to form a closed plane figure. What kind of polygon did you draw?

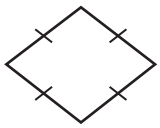
_____

9. WRITE Math Use grid paper to draw one regular quadrilateral and one quadrilateral that is not regular. Explain the difference.

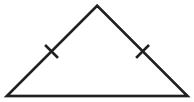
_____

Lesson Check

10. List all possible names for the polygon.



11. List all possible names for the polygon.



Spiral Review

12. Shyann needs 16 notebooks for her research. The notebooks come in packs of 3. Each pack costs $3.95. How much will she spend on the notebooks?

13. Multiply.

$\frac{2}{3} \times \frac{5}{8}$

14. Jenna has 30 barrettes. She is organizing her barrettes into 6 boxes. She puts the same number of barrettes in each box. Write an expression that you can use to find the number of barrettes in each box.

15. Divide.

$7 \div \frac{3}{4}$

Name _____

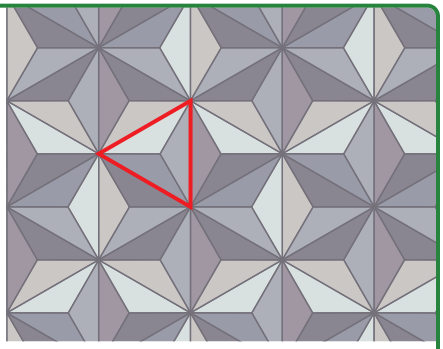
Classify Triangles

I Can classify triangles.

Florida's B.E.S.T.
- **Geometric Reasoning** 5.GR.1.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.5.1

UNLOCK the Problem Real World

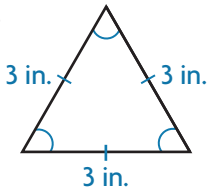
If you look closely at Epcot Center's Spaceship Earth building in Orlando, Florida, you may see a pattern of triangles. The triangle outlined in the pattern at the right has 3 sides of the same length and 3 acute angles. What type of triangle is outlined?



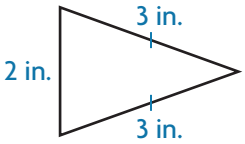
Complete the sentence that describes each type of triangle.

Classify triangles by the lengths of their sides.

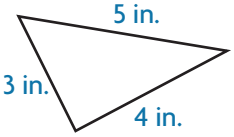
An **equilateral triangle** has _____ sides of equal length.



An **isosceles triangle** has _____ sides of equal length.

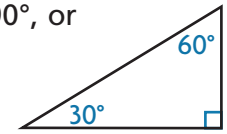


A **scalene triangle** has _____ sides of equal length.

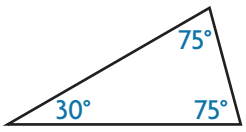


Classify triangles by the measures of their angles.

A **right triangle** has one 90°, or _____ angle.



An **acute triangle** has 3 _____ angles.



An **obtuse triangle** has 1 _____ angle.

The type of triangle outlined in the pattern can be classified by the length of its sides as an _____ triangle.

The triangle can also be classified by the measures of its angles as an _____ triangle.

Math Talk

MTR 5.1 Use patterns and structure.

Is an equilateral triangle also a regular polygon? Explain.

Activity

Classify triangle *ABC* by the lengths of its sides and by the measures of its angles.

Materials ■ centimeter ruler ■ protractor

STEP 1 Measure the sides of the triangle using a centimeter ruler. Label each side with its length. Classify the triangle by the lengths of its sides.

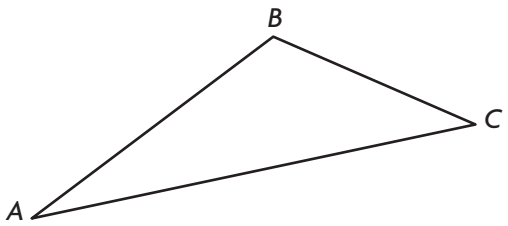
STEP 2 Measure the angles of the triangle using a protractor. Label each angle with its measure. Classify the triangle by the measures of its angles.

- What type of triangle has 3 sides of different lengths?

_____

- What is an angle called that is greater than 90° and less than 180°?

_____



Triangle *ABC* is a _____ _____ triangle.

Try This! **Draw the type of triangle described by the lengths of its sides and by the measures of its angles.**

Triangle by Length of Sides		
Triangle by Angle Measure	Scalene	Isosceles
Acute	**Think:** I need to draw a triangle that is acute and scalene.	
Obtuse		

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Can you draw a triangle that is right equilateral? Explain.

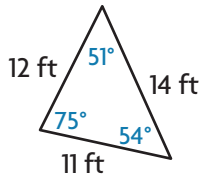
Name _____

Share and Show

Math Board

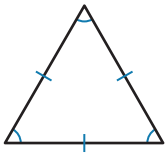
Classify the triangle. Write *isosceles, scalene,* or *equilateral.* Then write *acute, obtuse,* or *right.*

1.



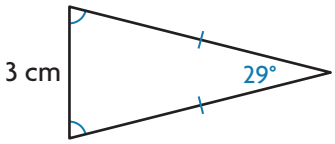
_____ _____

2.



_____ _____

3.



_____ _____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Can you tell that a triangle is obtuse, right, or acute without measuring the angles? Explain.

On Your Own

A triangle has sides with the lengths and angle measures given. Classify the triangle. Write *isosceles, scalene,* or *equilateral.* Then write *acute, obtuse,* or *right.*

4. **sides:** 3.5 cm, 6.2 cm, 3.5 cm

angles: 27°, 126°, 27°

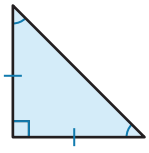
_____ _____

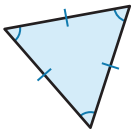
5. **sides:** 2 in., 5 in., 3.8 in.

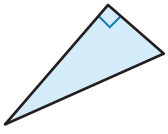
angles: 43°, 116°, 21°

_____ _____

6. Circle the figure that does not belong. Explain.







_____

7. Draw 2 equilateral triangles that are congruent and share a side. What polygon is formed? Is it a regular polygon?

_____

Problem Solving · Applications

MATH on the Spot

8. Shannon said that a triangle with exactly 2 sides of the same length and an obtuse angle is an equilateral obtuse triangle. Describe her error.

9. Jace drew a triangle with exactly 2 sides of the same length and 3 acute angles. Which of the following accurately describes the triangle? Mark all that apply.

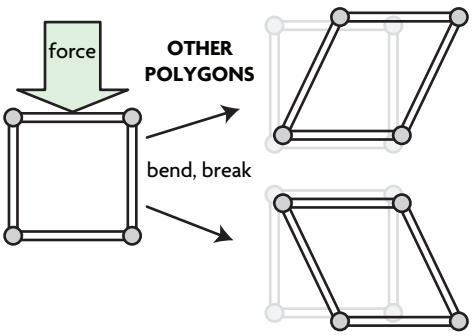
Ⓐ isosceles Ⓒ obtuse

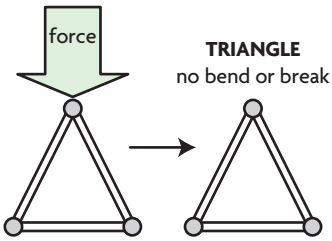
Ⓑ acute Ⓓ equilateral

Connect to Science

Forces and Balance

What makes triangles good for the construction of buildings or bridges? The 3 fixed lengths of the sides of a triangle, when joined, can form no other shape. So, when pushed, triangles don't bend or break.





MTR **Classify the triangles in the structures below. Write *isosceles, scalene,* or *equilateral.* Then write *acute, obtuse,* or *right.***

10.

11.

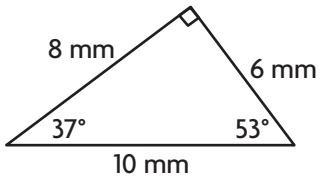
Name _____

Classify Triangles

Go Online
Interactive Examples

Classify the triangle. Write *isosceles*, *scalene*, or *equilateral*. Then write *acute*, *obtuse*, or *right*.

1.



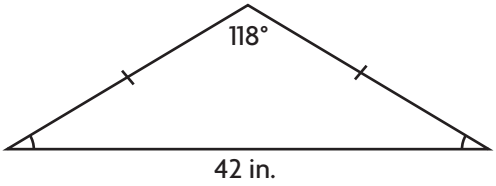
None of the side measures are equal. So, it is

_____. There is a right

angle, so it is a _____ triangle.

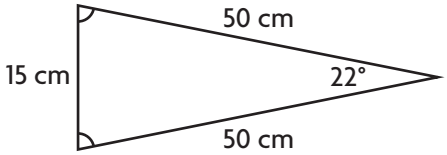
_____ _____

2.



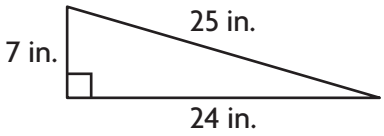
_____ _____

3.



_____ _____

4.



_____ _____

A triangle has sides with the lengths and angle measures given. Classify the triangle. Write *scalene*, *isosceles*, or *equilateral*. Then write *acute*, *obtuse*, or *right*.

5. **sides:** 44 mm, 28 mm, 24 mm
angles: 110°, 40°, 30°

_____ _____

6. **sides:** 23 mm, 20 mm, 13 mm
angles: 62°, 72°, 46°

_____ _____

Problem Solving Real World

7. Arielle says the pen for her horse is an acute right triangle. Is this possible? Explain.

_____

8. Hanan says every equilateral triangle is acute. Is this true? Explain.

_____

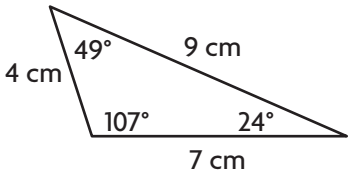
9. WRITE Math Draw three triangles: one equilateral, one isosceles, and one scalene. Label each and explain how you classified each triangle.

_____

Lesson Check

10. If two of a triangle's angles measure 42° and 48°, how would you classify that triangle? Write *acute, obtuse,* or *right*.

11. What is the classification of the following triangle? Write *scalene, isosceles,* or *right*.



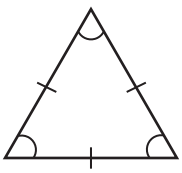
Spiral Review

12. How many tons are equal to 40,000 pounds?

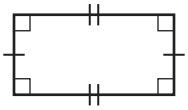
13. Choose a symbol to make the following statement true. Write >, <, or =.

6 kilometers ◯ 600 centimeters

14. What polygon is shown?



15. List all the possible names for the polygon.



Name _____

Classify Quadrilaterals

I Can classify and compare quadrilaterals.

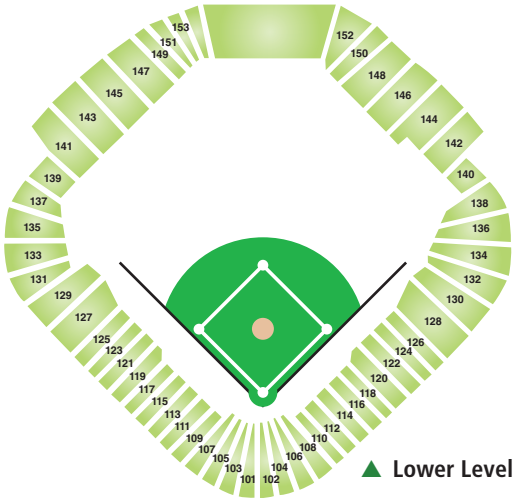
Florida's B.E.S.T.

- **Geometric Reasoning** 5.GR.1.1
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.5.1

UNLOCK the Problem Real World

A seating chart for a baseball field has many four-sided figures, or **quadrilaterals**. What types of quadrilaterals can you find in the seating chart?

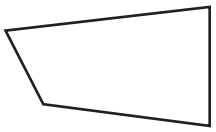
There are five special types of quadrilaterals. You can classify quadrilaterals by their properties, such as parallel sides and perpendicular sides. Parallel lines are lines that are always the same distance apart. Perpendicular lines are lines that intersect to form four right angles.



▲ Lower Level

Complete the sentence that describes each type of quadrilateral.

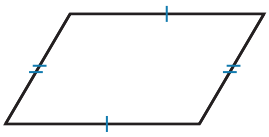
A general quadrilateral has 4 sides and 4 angles.



A **parallelogram** is a special trapezoid with

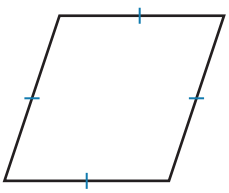
opposite _____

that are of equal length and are _____.



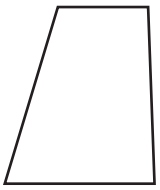
A **rhombus** is a special

parallelogram with _____ equal side lengths.



A **trapezoid** is a quadrilateral with at least

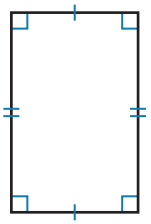
1 pair of _____ sides.



A **rectangle** is a special

parallelogram with _____ right angles and 4 pairs of

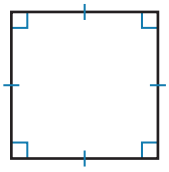
_____ sides.



A **square** is a special parallelogram with

_____ sides of equal

length and _____ right angles.



So, the types of quadrilaterals you can find in the seating chart of the field are

_____.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

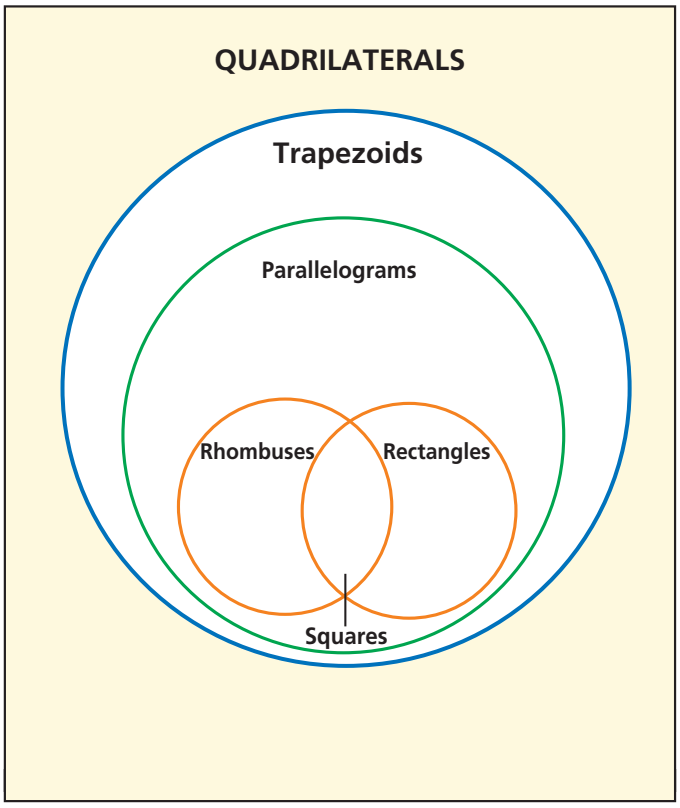
How are trapezoids and parallelograms different?

Activity

Materials ■ quadrilaterals ■ scissors

You can use a Venn diagram to sort quadrilaterals and find out how they are related.

- Draw the diagram below on your MathBoard.
- Cut out the quadrilaterals and sort them into the Venn diagram.
- Record your work by drawing each figure you have placed in the Venn diagram below.



Complete the sentences by writing *always, sometimes,* or *never.*

A rhombus is _____ a square.

A parallelogram is _____ a rectangle.

A rhombus is _____ a parallelogram.

A trapezoid is _____ a parallelogram.

A parellelogram is _____ a trapezoid.

A square is _____ a rhombus.

1. Explain why the circle for parallelograms is inside the circle for trapezoids.

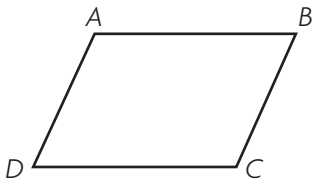
2. Explain why the section of the Venn diagram for squares intersects with both the section for rhombuses and the section for rectangles.

Name _____

Share and Show

Math Board

1. Use quadrilateral *ABCD* to answer each question. Complete the sentence.



a. Measure the sides. Are any of the sides the same length? _____
Mark any sides that are the same length.

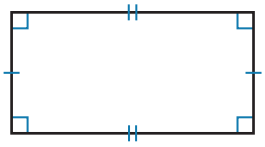
b. How many right angles, if any, does the quadrilateral have? _____

c. How many pairs of parallel sides, if any, does the quadrilateral have? _____

So, quadrilateral *ABCD* is a _____ and a _____.

Classify the quadrilateral in as many ways as possible. Write *quadrilateral, trapezoid, parallelogram, rectangle, rhombus,* or *square.*

✓ 2.



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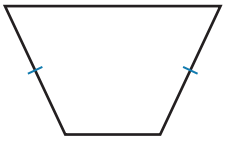
✓ 3.



_____

Math Talk

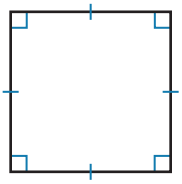
MTR 5.1 Use patterns and structure

Can a trapezoid have more than one pair of parallel sides that have the same length? Explain your answer.

On Your Own

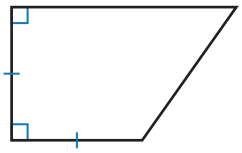
Classify the quadrilateral in as many ways as possible. Write *quadrilateral, trapezoid, parallelogram, rectangle, rhombus, or square.*

4.



_____

5.



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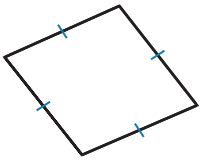
6.



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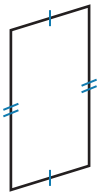
7.



_____

Problem Solving · Applications

8. A quadrilateral has exactly 2 sides of equal length. Which quadrilateral types could it be? Which quadrilaterals could it not be?

9. A quadrilateral has exactly 3 sides of equal length. Davis claims that the figure must be a rectangle. Why is his claim incorrect? Use a diagram to explain your answer.

10. MTR The opposite corners of a quadrilateral are right angles. The quadrilateral is not a rhombus. What kind of quadrilateral is this figure? Explain how you know.

MATH on the Spot

11. I am a figure with four sides. I can be placed in the following categories: quadrilateral, trapezoid, parallelogram, rectangle, rhombus, and square. Draw me. Explain why I fit into each category.

12. For 12a–12c, write the name of one quadrilateral from the tiles to complete a true statement. Use each quadrilateral only once.

square

trapezoid

rhombus

12a. A _____ is sometimes a square.

12b. A _____ is always a rectangle.

12c. A parallelogram is always a _____.

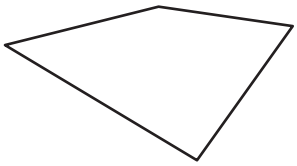
Name _____

Classify Quadrilaterals

Go Online
Interactive Examples

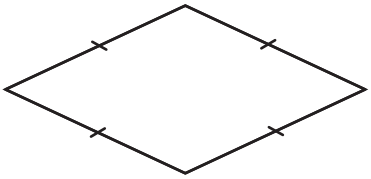
Classify the quadrilateral in as many ways as possible.
Write *quadrilateral, trapezoid, parallelogram, rectangle, rhombus,* or *square.*

1.



It has 4 sides, so it is a _____.
None of the sides are parallel, so there is _____.

2.



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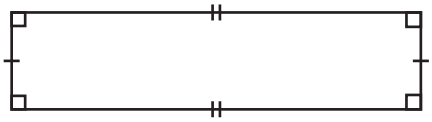
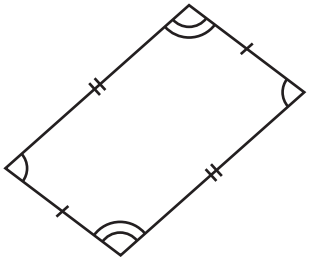
3.



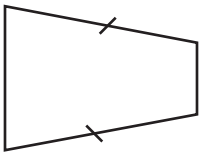
_____

4.



_____

5.



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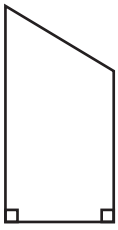
6.



_____

Problem Solving Real World

7. Kevin claims he can draw a trapezoid with three right angles. Is this possible? Explain.

_____

_____

_____

8. "If a figure is a square, then it is a regular quadrilateral." Is this true or false? Explain.

_____

_____

_____

9. WRITE Math All rectangles are parallelograms. Are all parallelograms rectangles? Explain.

_____

Lesson Check

10. Complete the following statement. Write *sometimes, always,* or *never*.

A trapezoid _____ has exactly one pair of parallel sides.

11. Complete the following statement. Write *sometimes, always,* or *never*.

A rhombus _____ has four angles with the same measure.

Spiral Review

12. How many kilograms are equal to 5,000 grams?

13. The sides of a triangle measure 6 inches, 8 inches, and 10 inches. The triangle has one 90° angle. What type of triangle is it?

14. A warehouse has 355 books to ship. Each shipping carton holds 14 books. How many cartons does the warehouse need to ship all of the books?

15. How many vertices does a rhombus have?

Name _____

Identify and Classify Three-Dimensional Figures

Florida's B.E.S.T.
- **Geometric Reasoning** 5.GR.1.2
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.2.1, MTR.3.1, MTR.5.1

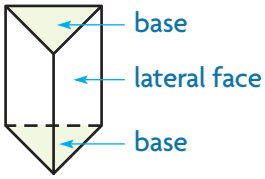
I Can identify, describe, and classify three-dimensional figures.

UNLOCK the Problem

A solid figure has three dimensions: length, width, and height. **Polyhedrons**, such as prisms and pyramids, are three-dimensional figures with faces that are polygons.

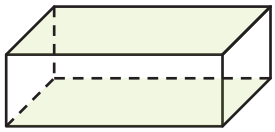
A **prism** is a polyhedron that has two same-size and same-shape polygons as **bases**.

A polyhedron's **lateral faces** are polygons that connect with the bases. The lateral faces of a prism are rectangles.



A prism's base shape is used to name the solid figure. The base shape of this prism is a triangle. The prism is a **triangular prism.**

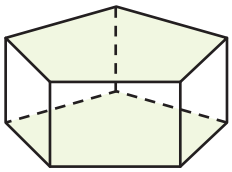
Identify the base shape of the prism. Use the terms in the box to correctly name the prism by its base shape.



Base shape: _____

Name the solid figure.

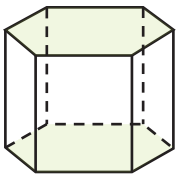
_____



Base shape: _____

Name the solid figure.

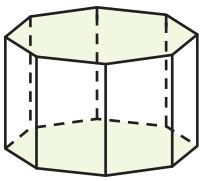
_____



Base shape: _____

Name the solid figure.

_____



Base shape: _____

Name the solid figure.

_____

Math Idea

A two-dimensional figure has the dimensions length and width, which are used to find the figure's area.

A three-dimensional figure, or solid, has three dimensions: length, width, and height. These dimensions are used to find the figure's volume, or the space it occupies.

Types of Prisms
- decagonal prism
- octagonal prism
- hexagonal prism
- pentagonal prism
- rectangular prism
- triangular prism

Math Talk

MTR 5.1 Use patterns and structure.

What shapes make up a decagonal prism, and how many are there? Explain.

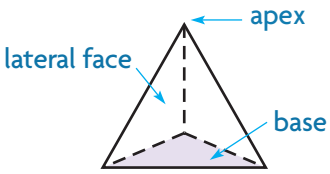
- **MTR** What special prism has same-size squares for bases and lateral faces? _____

Pyramid A **pyramid** is a polyhedron with only one base. The lateral faces of a pyramid are triangles that meet at a common vertex called an **apex.**

Like a prism, a pyramid is named for the shape of its base.

Identify the base shape of the pyramid. Use the terms in the box to correctly name the pyramid by its base shape.

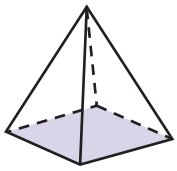
Types of Pyramids
pentagonal pyramid
rectangular pyramid
square pyramid
triangular pyramid



Base shape: _____

Name the solid figure.

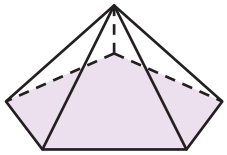
_____



Base shape: _____

Name the solid figure.

_____

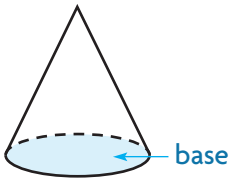


Base shape: _____

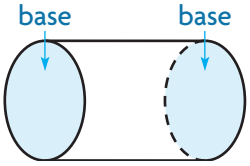
Name the solid figure.

_____

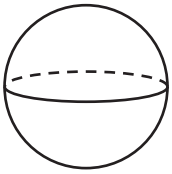
Non-polyhedrons Some three-dimensional figures have curved surfaces. These solid figures are *not* polyhedrons.



A **cone** has 1 circular base and 1 curved surface.



A **cylinder** has 2 same-size circular bases and 1 curved surface.



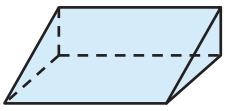
A **sphere** has no bases and 1 curved surface.

Share and Show

Math Board

Classify the solid figure. Write *prism, pyramid, cone, cylinder,* or *sphere*.

1.

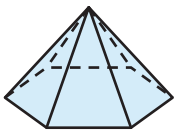


_____

2.

_____

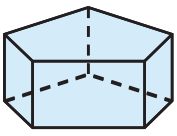
3.



_____

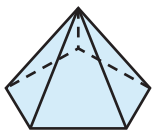
Name the solid figure.

4.



_____

5.



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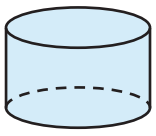
6.

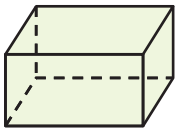


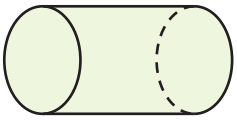
_____

Name _____

On Your Own

Classify the solid figure. Write *prism, pyramid, cone, cylinder,* or *sphere.*

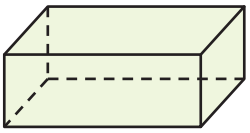
7. 

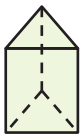
8. 

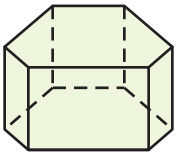
9. 

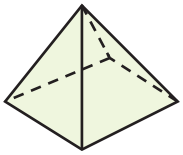
Name the solid figure.

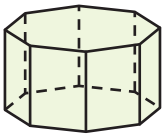
10. 

11. 

12. 

13. 

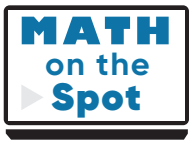
14. 

15. 

Problem Solving · Applications

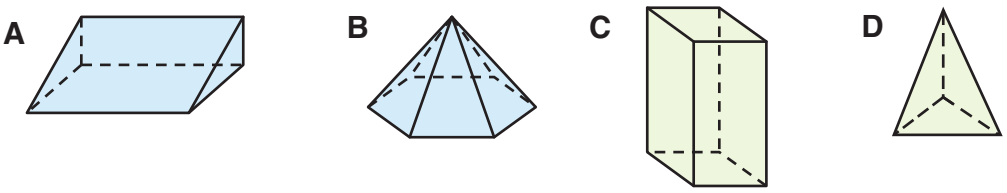
16. **MTR** Mario is making a sculpture out of stone. He starts by carving a base with five sides. He then carves five triangular lateral faces that all meet at an apex. What three-dimensional figure does Mario make?

17. What is another name for a cube? Explain your reasoning.



18. Compare the characteristics of prisms and pyramids. Tell how they are alike and how they are different.

19. Write the letter in the box that correctly describes the three-dimensional figure.



Prism

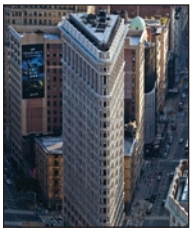
Pyramid

Connect to Reading

Identify the Details

If you were given a description of a building and asked to identify which one of these three buildings is described, which details would you use to determine the building?

A word problem contains details that help you solve the problem. Some details are meaningful and are important to finding the solution and some details may not be. *Identify the details* you need to solve the problem.



Flatiron Building, New York City, New York

Nehru Science Center, Mumbai, India

Luxor Hotel, Las Vegas, Nevada

Example **Read the description. Underline the details you need to identify the solid figure that will name the correct building.**

This building is one of the most identifiable structures in its city's skyline. It has a square foundation and 28 floors. The building has four triangular exterior faces that meet at a point at the top of the structure.

Identify the solid figure and name the correct building.

20. Solve the problem in the Example.

Solid figure: _____

Building: _____

21. This building was completed in 1902. It has a triangular foundation and a triangular roof that are the same size and shape. The three sides of the building are rectangles.

Solid figure: _____

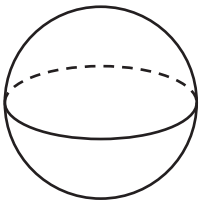
Building: _____

Name _____

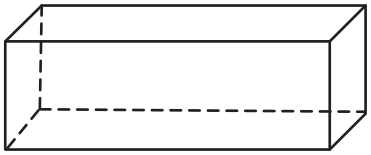
Identify and Classify Three-Dimensional Figures

Go Online
Interactive Examples

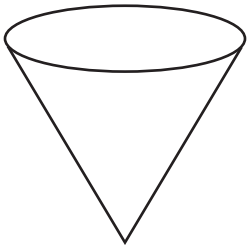
Classify the solid figure. Write *prism, pyramid, cone, cylinder,* or *sphere.*

1. 

There are no bases. There is 1 curved surface. It is a _____.

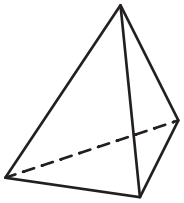
2. 

_____

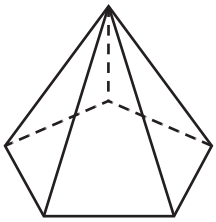
3. 

_____

Name the solid figure.

4. 

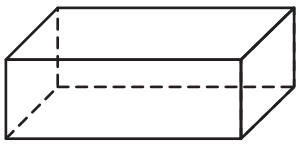
_____

5. 

_____

6. 

_____

7. 

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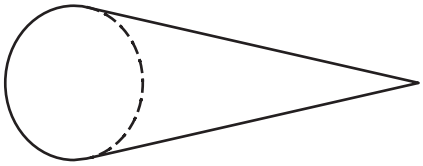
8. 

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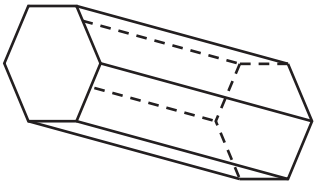
9. 

_____

Problem Solving Real World

10. Nanako said she drew a square pyramid and that all of the faces are triangles. Is this possible? Explain.

_____

11. WRITE Math Explain why a three-dimensional figure with a curved surface is not a polyhedron.

_____

Lesson Check

12. Esteban made a model of a solid figure with 1 circular base and 1 curved surface. What solid figure did he make?

13. How many rectangular faces does a hexagonal pyramid have?

Spiral Review

14. Laura walks $\frac{3}{5}$ mile to school each day. Isaiah's walk to school is 3 times as long as Laura's. How far does Isaiah walk to school each day?

15. Kaden has $4\frac{3}{4}$ feet of rope. He plans to cut off $1\frac{1}{2}$ feet from the rope. How much rope will be left?

16. Latasha made 128 ounces of punch. How many cups of punch did Latasha make?

17. Complete the following statement. Write *sometimes, always,* or *never*.

Trapezoids are _____ parallelograms.

Name _____

Chapter 14

Chapter Review

1. Fran drew a triangle with 3 sides of different lengths and 1 right angle. Which term accurately describes the triangle? Mark all that apply.

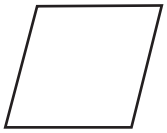
Ⓐ isosceles

Ⓑ scalene

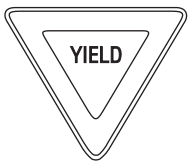
Ⓒ acute

Ⓓ right

2. Jenvieve draws a quadrilateral with 2 pairs of opposite sides that are parallel. The figure has no right angles. Draw and name two figures that she could have drawn.



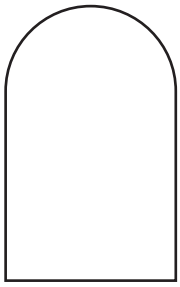
3. Mr. Delgado sees this sign while he is driving.
For numbers 3a–3b, choose the values and term that correctly describes the shape Mr. Delgado saw.



3a. The figure has [3 / 4 / 5] sides and [0 / 2 / 3] vertices.

3b. All of the sides are the same length, so the figure is [not a polygon / a regular polygon / not a regular polygon].

4. Is this figure a polygon? Explain.



5. Match each figure with its number of vertices. Not every number of vertices will be used.

trapezoid	2 vertices
quadrilateral	3 vertices
obtuse scalene triangle	4 vertices
rhombus	5 vertices

6. Chuck is making a poster about polyhedrons for his math class. He will draw figures and organize them in different sections of the poster.

Part A

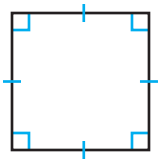
Chuck wants to draw three-dimensional figures whose lateral faces are rectangles. He says he can draw prisms and pyramids. Do you agree? Explain your answer.

Part B

Chuck says that he can draw a cylinder on his polyhedron poster because it has a pair of bases that are the same size and shape. Is Chuck correct? Explain your reasoning.

Name _____

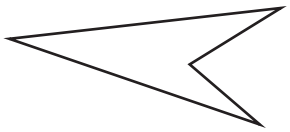
7. Javier drew the shape shown. For numbers 7a–7b, choose the values and term that correctly describe the shape Javier drew.



7a. The figure has [2 / 3 / 4] sides and [1 / 2 / 4] angles.

7b. The figure is a [regular triangle / regular polyhedron / regular quadrilateral].

8. Which words describe this figure? Mark all that apply.



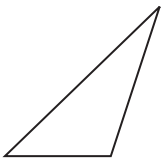
Ⓐ triangle

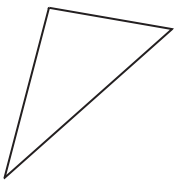
Ⓑ quadrilateral

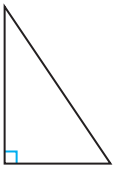
Ⓒ trapezoid

Ⓓ polygon

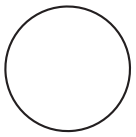
9. Nathan drew a scalene, obtuse triangle. For numbers 9a–9c, choose Yes or No to indicate whether the figure shown could be the triangle that Nathan drew.

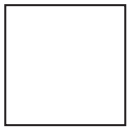
9a.  ○ Yes ○ No

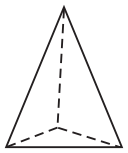
9b.  ○ Yes ○ No

9c.  ○ Yes ○ No

10. Tell whether the figure is a *polygon*, a *polyhedron*, or *neither*.

10a. 

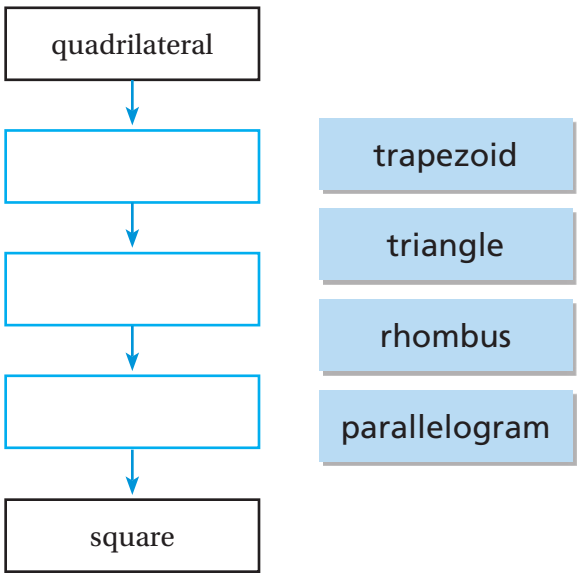
10b. 

10c. 

11. Mario is making a diagram that shows the relationship between different kinds of quadrilaterals. In the diagram, each quadrilateral on a lower level can also be described by the quadrilateral(s) above it on higher levels.

Part A

Complete the diagram by writing the name of one figure from the tiles in each box. Not every figure will be used.

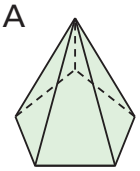


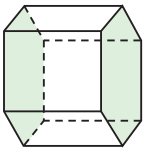
Part B

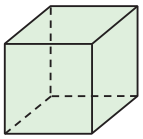
Mario claims that a rhombus is *sometimes* a square, but a square is *always* a rhombus. Is he correct? Explain your answer.

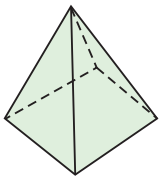
Name _____

12. Write the letter in the box that correctly describes the three-dimensional figure.

A 

B 

C 

D 

Prism	Pyramid

13. How can you classify the triangle? Give all possibilities. Explain.

13a. a triangle with two sides that are 7.3 cm long

_____

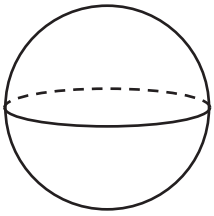
_____

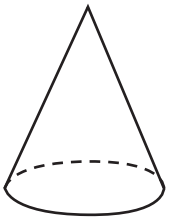
13b. a triangle with an acute angle

_____

_____

14. 14a. Classify the three-dimensional figures. Write *cone*, *cylinder*, or *sphere*.





_____ _____ _____

14b. Why are these figures *not* polyhedrons?

_____

15. For numbers 15a–15c, write the name of one quadrilateral from the tiles to complete a true statement. Use each quadrilateral once only.

15a. A ☐ is always a parallelogram.

15b. A ☐ is always a rhombus.

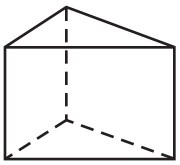
15c. A ☐ is sometimes a parallelogram.

square

trapezoid

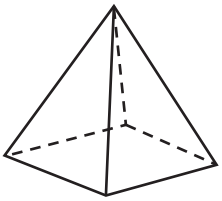
rectangle

16. How many lateral faces does this polyhedron have? What is the shape of the lateral faces?



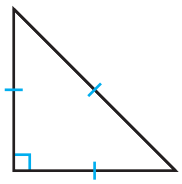
_____

17. How many bases does this polyhedron have? What is the shape of the base?



_____

18. Select True or False for each statement about the figure.



18a. The figure has no right angles. ○ True ○ False

18b. The figure has two acute angles. ○ True ○ False

18c. The figure has two sides of equal length. ○ True ○ False

18d. The figure is an equilateral triangle. ○ True ○ False