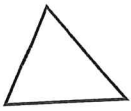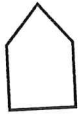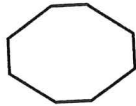# Polygons

A polygon is a closed plane figure made up of line segments. Common polygons have names that tell the number of sides the polygon has.

Triangle
3 sides

Pentagon
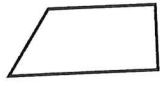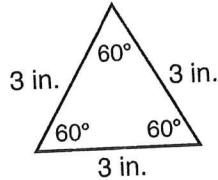5 sides

Octagon
8 sides

Hexagon
6 sides

Open Figure

Quadrilateral
4 sides

A **regular polygon** has sides of equal length and angles of equal measure.

3 in. 60° 3 in.
60° 60°
3 in.

Each side is 3 in. long.
Each angle is 60°.

ATI Day 10

5.6.3
5.6.4

EXAMPLE

Name each polygon. Then tell if it appears to be a regular polygon.

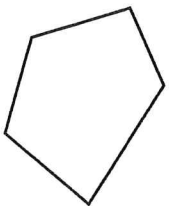1. _____
   _____
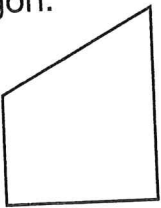
2. _____
   _____

3. _____
   _____

4. _____
   _____
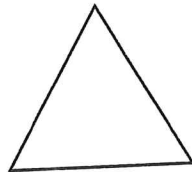
5. Shakira sorted shapes into two different groups. Use geometric terms to describe how she sorted the shapes.

Group A	Group B

_____

_____

_____

_____

Polygons

Name each polygon. Then tell if it appears to be a regular
polygon.

1.

_____

_____
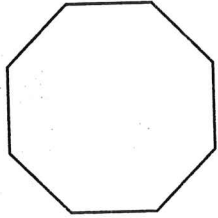
2.

_____

_____
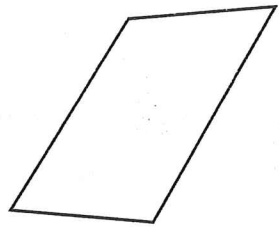
3. Name the polygon. Name the vertices.

_____

_____
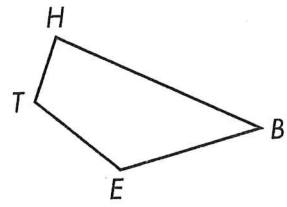
4. Which polygon has eight sides?

A quadrilateral   **B** pentagon   **C** hexagon   **D** octagon

5. **Writing to Explain** Draw two regular polygons and two that are irregular. Use
geometric terms to describe one characteristic of each type.

_____

_____

_____

Name _____

Triangles

You can classify triangles by the lengths of their sides and the sizes of their angles.

EXAMPLE

acute
all angles less than 90°

60°
8 cm   8 cm
60°   60°
8 cm

equilateral
all sides the same length

This triangle is both equilateral and acute.

Not all acute triangles are equilateral.

right
one right angle

16 in.   16 in.
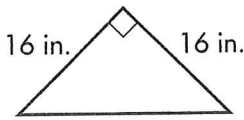
isosceles
two sides the same length

This triangle is both isosceles and right.

Not all right triangles are isosceles.

obtuse
one obtuse angle

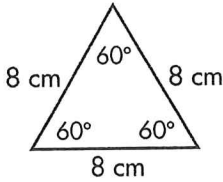7.5 ft
4 ft
120°
5 ft
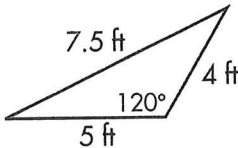
scalene
no sides the same length

This triangle is both scalene and obtuse.

Not all obtuse triangles are scalene.

Remember that the sum of the measures of the angles of a triangle is 180°.

Classify each triangle by its sides and then by its angles.

1. 8 cm 128° 8 cm
   26°   26°
   14 cm

2. 5 in.   3 in.
   4 in.

3. 60°
   3 ft   3 ft
   60°   60°
   3 ft

_____   _____   _____

_____   _____   _____
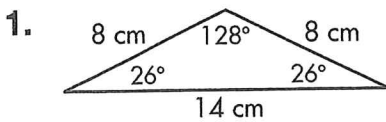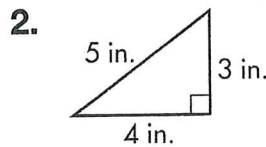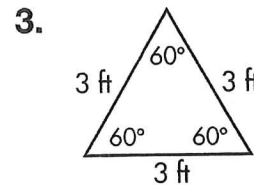
Classify the following triangles based on the angles given.

4. 40°, 100°, 40° _____

5. 14°, 98°, 68° _____

6. 38°, 38°, 104° _____

R 15·2

Triangles

Classify each triangle by its sides and then by its angles.

1.

12.42 ft   9.5 ft

8 ft

_____

_____

2.

60°

4 m   4 m

60°   60°

4 m

_____

_____
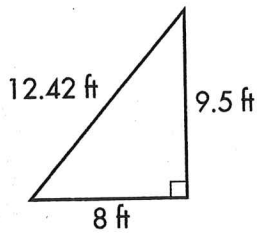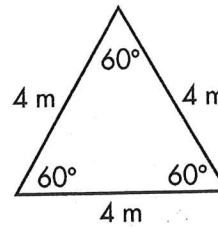
Given the measures of the angles for a triangle, classify the triangle by angles.

3. 47°, 62°, 71° _____

4. 29°, 90°, 61° _____

5. 75°, 75°, 30° _____

6. 54°, 36°, 90° _____

7. Judy bought a new tent for a camping trip. Look at the side of the tent with the opening to classify the triangle by its sides and its angles.

4 ft   4 ft

3 ft

_____
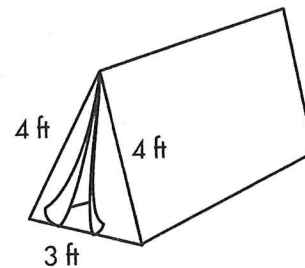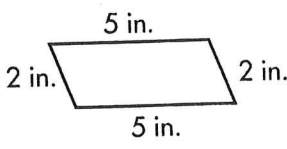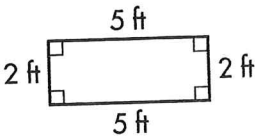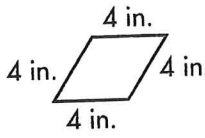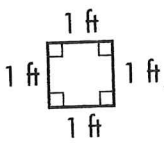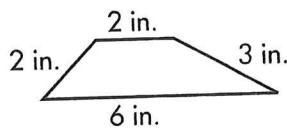
8. Which describes a scalene triangle?

A 4 equal sides   **B** 3 equal sides   **C** 2 equal sides   **D** 0 equal sides

9. The lengths of two sides of a triangle are 15 in. each. The third side measures 10 in. What type of triangle is this? Explain your answer using geometric terms.

_____

_____

Properties of Quadrilaterals
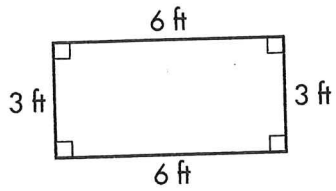
Quadrilateral	Definition	Example
Parallelogram	A quadrilateral with both pairs of opposite sides parallel and equal in length	5 in. / 2 in. / 2 in. / 5 in.
Rectangle	A parallelogram with four right angles	5 ft / 2 ft / 2 ft / 5 ft
Rhombus	A parallelogram with all sides the same length	4 in. / 4 in. / 4 in. / 4 in.
Square	A rectangle with all sides the same length	1 ft / 1 ft / 1 ft / 1 ft
Trapezoid	A quadrilateral with only one pair of parallel sides	2 in. / 2 in. / 3 in. / 6 in.
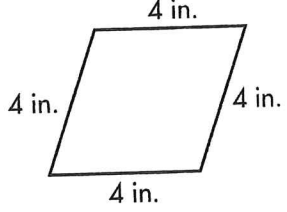
EXAMPLE
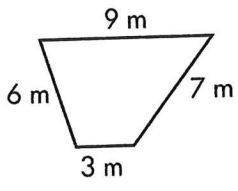
Remember that the sum of the measures of the angles of a quadrilateral is 360°.

Classify each quadrilateral. Be as specific as possible.

1.
6 ft
3 ft   3 ft
6 ft

_____

2.
4 in.
4 in.   4 in.
4 in.

_____

3.
9 m
6 m   7 m
3 m

_____

4. How is a square similar to a rhombus? How is it different?

_____

_____

Properties of Quadrilaterals

Classify each quadrilateral. Be as specific as possible.

1.

6 cm

18 cm   18 cm

20 cm

_____

2.

15 cm

8 cm   8 cm

15 cm

_____

3.

8 in.

4 in.   4 in.

8 in.

_____

4.

17 cm

17 cm   17 cm

17 cm

_____
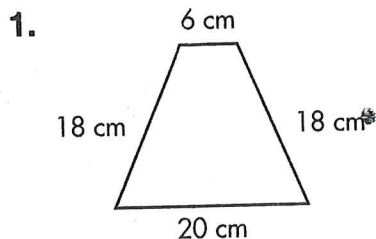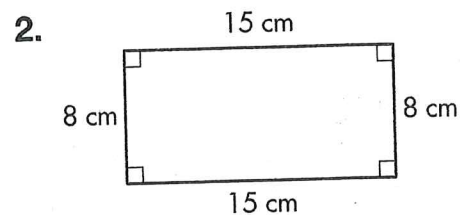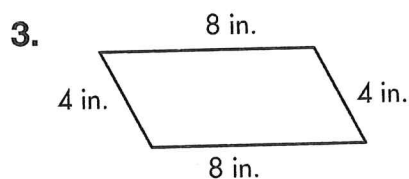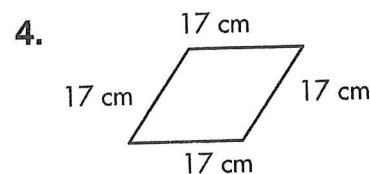
5. Name the vertices of the square to the right.

_____

F _____ G

L _____ A
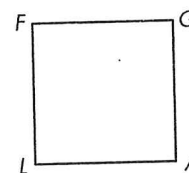
6. The angles of a quadrilateral measure 80°, 100°, 100° and 80° in this order. What kind of quadrilateral has this shape? How do you know?

_____

_____

_____

7. Can a trapezoid have four obtuse angles? Explain.

_____

_____

_____

Spelling Their Way to Success

What would it be like to be a contestant in one of the most famous spelling bees in the world?

1   Have you ever participated in a school or community spelling bee? If you have, you know how exciting it is and how intense the competition can be. No one knows this better than the contestants in the Annual Scripps Howard National Spelling Bee in Washington, D.C. Every year, the best spellers come together to compete for the $12,000 grand prize and the honor of winning such a prestigious competition.

2   The first event was held in 1925 and was sponsored by a Kentucky newspaper, the *Louisville Courier-Journal*. A national bee has been held every year since then, except for 1943, 1944, and 1945 because of World War II. There were only nine contestants that first year. Today, there are more than 250 competitors. The sponsors, mostly newspapers, hold competitions in their communities. The winners of these spelling bees meet in Washington, D.C. for the national competition.

3   There are many rules and restrictions for the national bee. The contestants must be under 16 years of age and must not be in a grade higher than the eighth grade. There may be as many as five rounds. All of the spelling is done orally, except in the first round when the contestants must take a written test. After a spelling word is given to a contestant, he or she is allowed to ask for the word's pronunciation, definition, and language of origin. The contestant can even request that the word be used in a sentence.

4   You might wonder how all of these pieces of information could help someone spell an unfamiliar word. The competitors spend many hours studying the spellings of specific words. But even more importantly, they learn patterns that they can use when they do not know a word.

5   Being able to break a word down into its parts can also help. Imagine having to spell the word *arachnophobia*. This sounds like a difficult word, but the definition, *a fear of spiders*, contains a couple of clues. If you know the Greek word *phobos* means *fear* and the Greek word for spider is *arachne*, *arachnophobia* becomes much simpler to spell.

6   No matter how much studying the contestants do, there is no way for them to predict what the word will be when it is their turn to take the microphone. Here is a list of some of the winning words from the last seven decades of national bees: *chlorophyll, crustaceology, insouciant, chihuahua, sarcophagus, logorrhea, esquamulose,* and *milieu*. If you can spell any of these words, you just might have a future as a Scripps Howard National Spelling Bee champ.

Vocabulary Skills

Write the words from the passage that have the meanings below.

1. important and highly respected

   _____
   Par. 1

2. people or companies who provide financial support

   _____
   Par. 2

3. original source; beginning

   _____
   Par. 3

4. know about in advance

   _____
   Par. 6

Check the sentence in which the underlined word has the same meaning as it does in the story.

5. _____ Dominic was careful not to be stung by a <u>bee</u> when he walked across the lawn.

   _____ My aunt is going to a quilting <u>bee</u> next Saturday.

6. _____ Do you have time to play a <u>round</u> of golf with me today?

   _____ The baby played with the <u>round</u> rubber ball.

Fill in the blanks below with the possessive form of the word in parentheses.

7. The _____ words are often hard for even adults to spell. (winners)

8. Each _____ goal is to become the new spelling champ. (contestant)

9. A contestant may ask for a _____ definition. (word)

Reading Skills

1. Why wasn't a national bee held in 1943, 1944, or 1945?

   _____

2. Name two words that winners of the national bee have spelled.

   _____

3. What is one technique contestants use to spell unfamiliar words?

   _____

4. Check the sentence that best states the main idea of the selection.

   _____ Spellers cannot predict what words they will be asked to spell.

   _____ A contestant in the Scripps Howard National Spelling Bee can ask for a word's pronunciation, definition, and language of origin.

   _____ The Scripps Howard National Spelling Bee in Washington, D.C. is a time for the best spellers to compete for a grand prize.

Write **T** before the sentences that are true. Write **F** before the sentences that are false.

5. _____ During the first round, contestants take a written test.

6. _____ The Scripps Howard National Spelling Bee is held in the state of Washington.

7. _____ Contestants must be older than 16.

8. _____ The first national bee was held in 1925.

SS-5 4.2.1
   4.2.2

Regions

Regions are areas that have one or more physical or human characteristics in common. The state of Kentucky is broken up into six geographical regions based on physical characteristics, including:

Pennyroyal Region
This region is named after a plant in the mint family called the pennyroyal. Its primary characteristic landform is a chain of caves, including one of the world's largest known cave systems, Mammoth Cave.

Eastern Mountains and Coal Fields
This region includes the mountains in eastern Kentucky, as well as a flat section sometimes referred to as the Appalachian Plateau. As its name suggests, this region is a major source of coal.

Bluegrass Region
This region is a large plateau and is named for its vast quantity of a special type of grass known as bluegrass.

Western Coal Fields
Like the Eastern Coal Fields region, the Western Coal Fields Region has a large natural supply of coal. This region is also a major agricultural hub in the state.

Jackson Purchase
This region consists of the westernmost part of the state and is bordered by three rivers: the Mississippi, the Ohio, and the Tennessee. A primary geographic characteristic of this region is natural swamplands.

The Knobs
This region is named for its primary characteristic landform, knob-like hills.

Other regions defined by physical characteristics include regions defined by their physical location, including the South, which is physically located in the southern part of the country, the Northeast, the Midwest, etc.

Examples of regions defined by human characteristics include:

Appalachia
The Appalachian Mountains range from the central region of New York State southwest to northeastern Mississippi. However, when the term "Appalachia" is used, it often refers to the region as defined by the traditions and history of the people that live in the Appalachians. Their culture is marked by characteristic forms of music, theatre, dance, artwork, crafts, woodcarving, quilting, and cooking, resulting from peoples living isolated from mainstream society for long periods of time.

Cornbelt
A cornbelt is a region of the country with a primarily agricultural economy, centered on the production of corn and related crops and products.

What the majority, or large part, of the population do in an area is another type of human characteristic.

Amish Country
The Amish are a group of people with very strict religious beliefs who do not use modern technology in any way. Everything they build is made by hand, transportation is by horse and buggy, and lighting takes the form of candles and lanterns—they do not even use electricity! Amish Country is any region where large numbers of Amish people live and work.

Example 4

Which of the following would be considered a region?

- **A.** The Midwest
- **B.** North America
- **C.** Kentucky
- **D.** Atlantic Ocean

The correct answer is **A**. The Midwest is a region defined by its physical location—the middle of the United States. North America is a continent, Kentucky is a state, and the Atlantic is an ocean.

Example 5

Which is a region based on a physical characteristic?

- **A.** Appalachia
- **B.** The Knobs
- **C.** Amish Country
- **D.** Cornbelt

The correct answer is **B**. The Knobs is a region of Kentucky named for its knob-like hills. The other three choices are regions based on human characteristics.

Example 6

Which region of Kentucky is named for its primary vegetation?

- **A.** Eastern Mountains and Coal Fields
- **B.** Jackson Purchase
- **C.** Bluegrass Region
- **D.** Western Coal Fields

The correct answer is **C**. The Bluegrass Region is named for bluegrass, a special type of grass that is common throughout that region. The Eastern Mountains and Coal Fields and the Western Coal Fields are named for their vast coal supplies. The Jackson Purchase region is bordered by rivers and contains swampland, but it is named for President Andrew Jackson.

Critical Thinking 13.2

Regions can be defined by their physical and human characteristics. Give three examples of regions, and for each, explain whether it is based on human or physical characteristics, and identify what they are.

_____

_____

_____

_____

_____

_____

_____

I 👨 you a question!

What is the best invention of all-time?

Scholastic Magazine has asked you to write an article for their magazine telling other kids what the most important invention of all time is. They sent you a list of inventions to choose from that includes refrigeration, the smart phone, computers, automobiles, or airplanes.

Introduction:

REason 1:

Music

Imagine you are out on a boat in the middle of the ocean. The water is calm and you are drifting along enjoying the peaceful ride. In the distance you see a black cloud. As you draw closer the water begins to get rough and you hear thunder getting closer and closer. Finally you are in the middle of the storm and your boat is rocking from side to side. The thunder and lightening are all around your boat. You ride out the storm and reach the other side. The water becomes calm and you begin to drift along in peace.

The story above could be used to create a song. Describe how you could use dynamics and tempo to help tell each part of the story.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____