Dear Parents,   Friday, February 23, 2024

Third grade teachers are preparing students for the Georgia Milestones Assessment in April. One of the last units of math concentrates on the area of geometry. The Georgia Performance Standards are 3.GSR.6-Identify the attributes of polygons including parallel segments, perpendicular segments, right angles, and symmetry.

Teachers have created a support math packet which includes various elements of geometry such as polygons, parallel segments, and angles and symmetry. Please feel free to use this packet to support your student in this area of math concentration. Students who return the completed packet will receive PBIS points to shop at the school store.

If you should have additional questions, please contact your child's homeroom teacher.
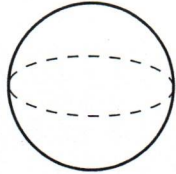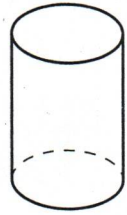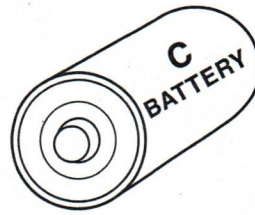

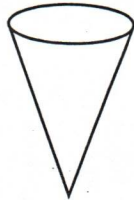Sincerely,

Third Grade Team
CVES

Name _____

Solid Figures

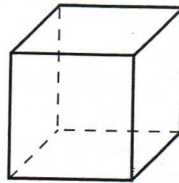Three-dimensional objects are called solid figures. Solid figures are found in the world in many shapes and sizes.

The battery is an example of a cylinder. A **solid figure** is named according to its features.
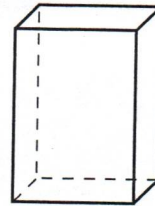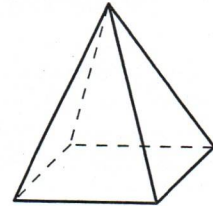
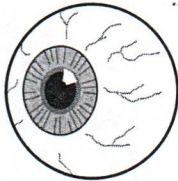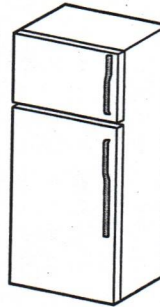|				
Sphere	**Cone**	**Cube**	**Rectangular Prism**	**Pyramid**

Name the solid figure or figures each object looks like.

1.

_____

2.

_____

3.

_____

4.

_____
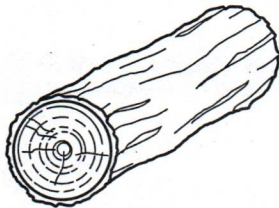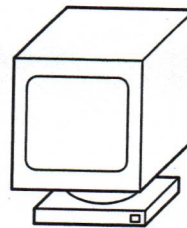
Name_____

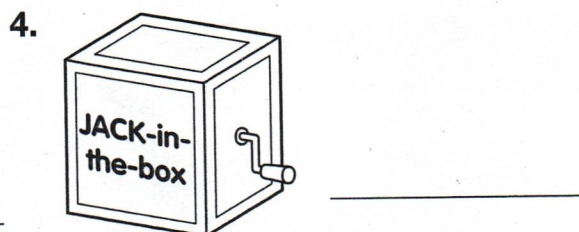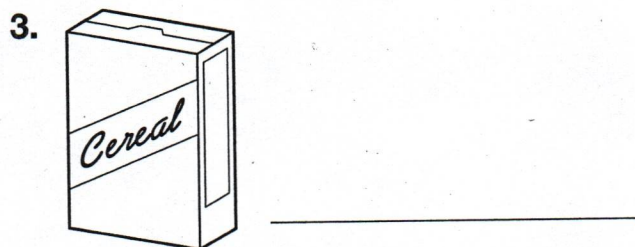# Solid Figures

Name the solid figure or figures each object looks like.

1.

_____

2.

_____

3.

_____

4.

_____
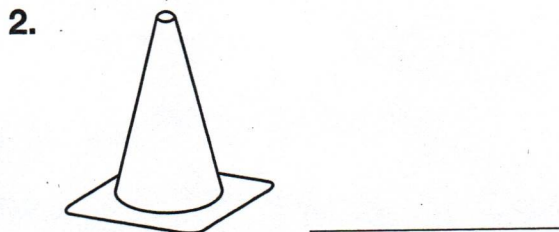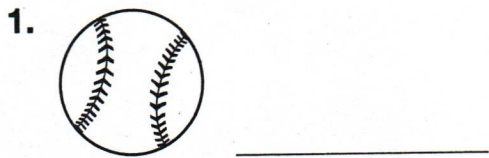
5. What solid figures would you get if you cut a cube as shown?

_____
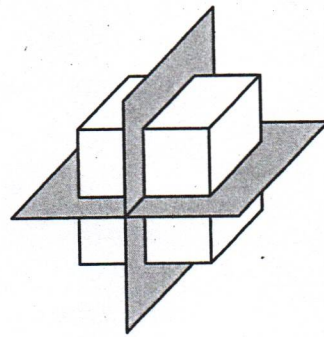
Test Prep

6. Which has the most flat surfaces?

   A. Pyramid   **B.** Cylinder   **C.** Cone   **D.** Rectangular prism

7. Writing in Math Explain how a pyramid and a cone are alike and different.

_____

_____

_____
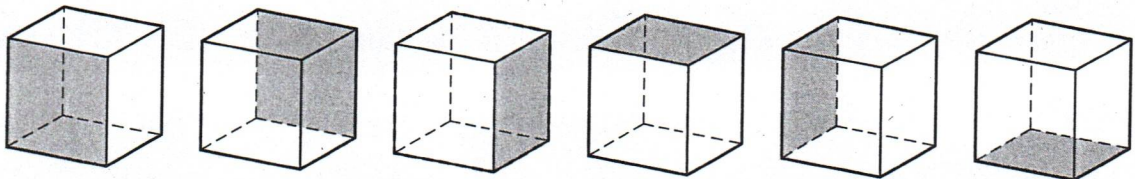
_____

Relating Solids and Shapes

In a drawing of a solid figure, it is not always easy to find the number of faces, edges, or corners. Sometimes it helps to imagine that the solid figure is transparent.

By using a transparent cube, you can count each face. Remember that each flat surface is called a **face.**

There are 6 faces on a cube.

Use the transparent cube to count the number of edges. Remember that an **edge** is a line segment where two faces meet. There are 12 edges on a cube.

Can you use the transparent cube to find the number of corners on a cube? Remember a **corner** is the point where 2 or more edges meet. There are 8 corners on a cube.

1. How many faces does a rectangular prism have? _____

2. How many edges does a pyramid have? _____

3. How many corners does a rectangular prism have? _____

4. **Reasoning** How are a cube and a rectangular prism alike? How are they different?

_____

_____

_____

_____

Name_____

Lines and Line Segments

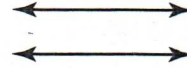You can find lines and parts of lines in shapes and objects.

A **line** is a set of points that is endless in both directions. Lines have arrows on each end.

A **line segment** is part of a line. It has an endpoint on each end.

A **ray** is part of a line that is endless in one direction. A ray has an endpoint on one end and an arrow on the other.
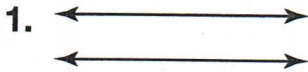
Parallel lines never cross. They also stay the same distance apart from one another.
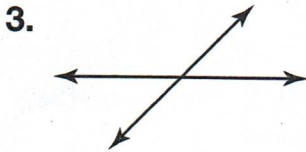
Intersecting lines cross at one point. Any lines that are not parallel are intersecting.
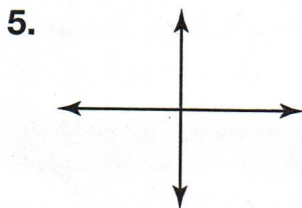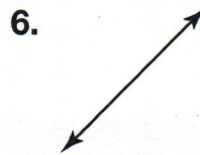
Write the name for each.

1.

_____

2.

_____

3.

_____

4.

_____

5.

_____

6.

_____

7. **Reasoning** Is it possible for two rays to be parallel to each other?

_____

Lines and Line Segments

Write the name for each.

1.

_____
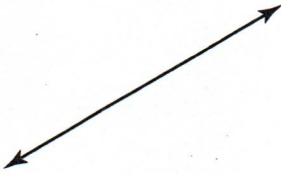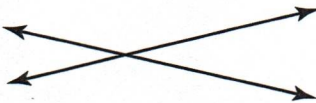
2.
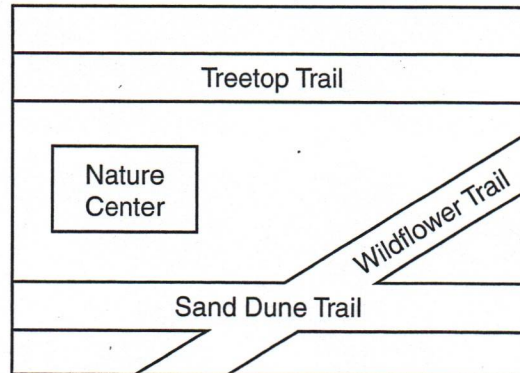
_____

3.

_____

4. Draw a set of parallel lines.

Use the map. Tell if the trails are parallel or intersecting.

| Treetop Trail |
| Nature Center |
| Wildflower Trail |
| Sand Dune Trail |

5. Treetop and Sand Dune

_____

6. Sand Dune and Wildflower

_____

Test Prep

7. How many times does a pair of intersecting lines cross?
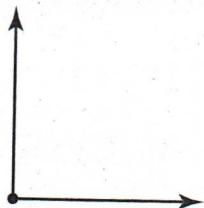
A. Never   **B.** 1 time   **C.** 2 times   **D.** 3 times

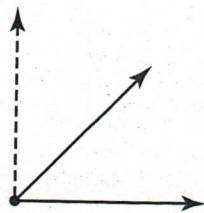**8.** **Writing in Math** Explain how you can tell the difference between a ray and a line.
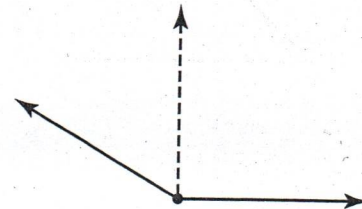
_____

_____

Angles

A **right angle** forms what is normally called a square corner. When two lines form right angles, the lines are called **perpendicular lines.**

An **acute angle** is less than a right angle.

An **obtuse angle** is greater than a right angle.
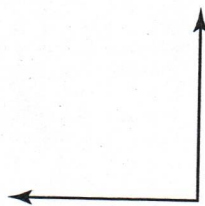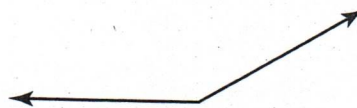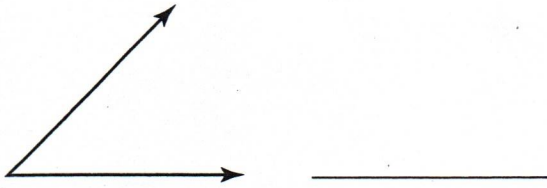
Tell whether each angle is right, acute, or obtuse.

1. _____

2. _____

3. _____

4. _____

Look at the capital letters and tell what kind of angle is in each letter.

5. L _____

6. V _____

Name_____

Angles

Tell whether each angle is right, acute, or obtuse.
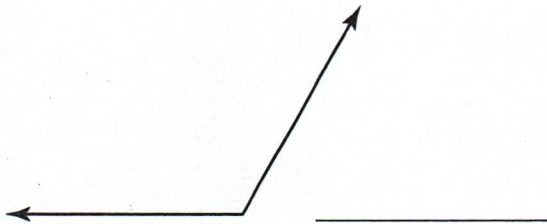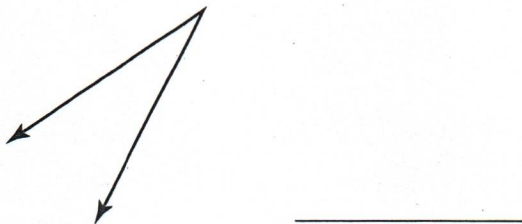
1. _____

2. _____
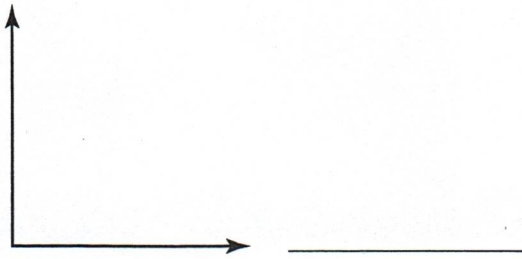
3. _____

4. _____

5. Draw a right angle. Then draw an acute angle and an obtuse angle.

Test Prep

6. At which time do the hands of a clock form an acute angle?

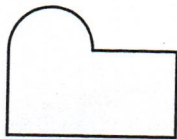   **A.** 2:00 P.M.   **B.** 4:00 P.M.   **C.** 6:00 P.M.   **D.** 8:00 P.M.

7. **Writing in Math** Describe an object that has a right angle.

_____

_____
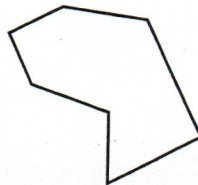
_____

_____

Polygons

Polygons are closed figures that are made up of straight line segments.

Not a polygon
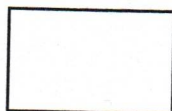Not a closed
figure

Not a polygon
Not all straight
lines

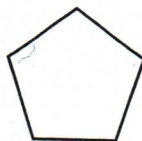Polygon
Closed figure
All straight lines

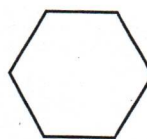The number of sides in a polygon gives the polygon its name.

Triangle
3 sides

Quadrilateral
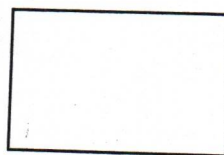4 sides

Pentagon
5 sides

Hexagon
6 sides

Octagon
8 sides

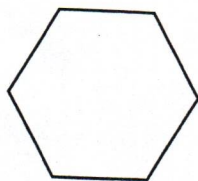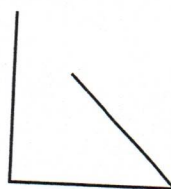Is each figure a polygon? If it is a polygon, give its name. If not, explain why.

1.

_____

_____

2.

_____

_____

3.

_____

_____

4.

_____

_____

Name_____

Polygons

Is each figure below a polygon? If it is a polygon, give its name.
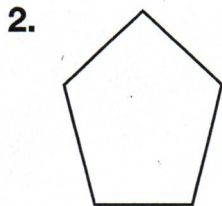If not, explain why.

1.

_____

2.

_____
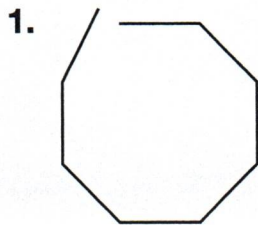
Which polygon has

3. 6 sides?   _____

4. 8 sides?   _____

5. Reasoning Explain how you know the next polygon in the pattern.

_____

_____

Test Prep

6. Which is NOT a polygon?

   A. Triangle   **B.** Pentagon   **C.** Circle   **D.** Hexagon

7. Writing in Math Explain why the shape of a football is not a polygon.
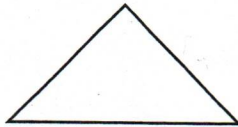
_____

_____

Triangles

Triangles are polygons with three sides.

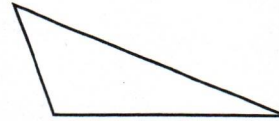Triangles can be named by the lengths of their sides.
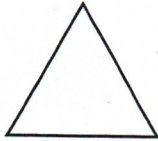
Equilateral Triangle
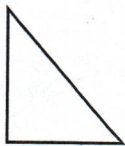All sides are the
same length.

Isosceles Triangle
At least two sides
are the same length.

Scalene Triangle
No sides are the
same length.

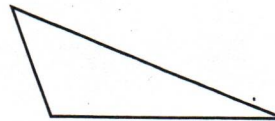Triangles can also be described by their angles.

Right Triangle
One angle is a
right angle.

Acute Triangle
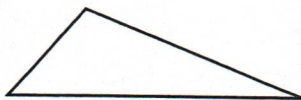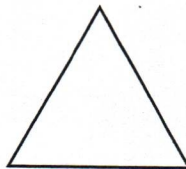All three angles
are acute angles.

Obtuse Triangle
One angle is an
obtuse angle.

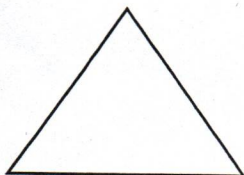Tell if the triangle is equilateral, isosceles, or scalene.

1.

2.

3.

_____

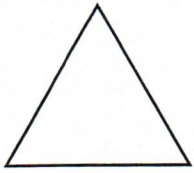Tell if the triangle is right, acute, or obtuse.
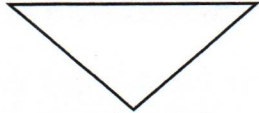
4.

5.

6.

_____

Triangles

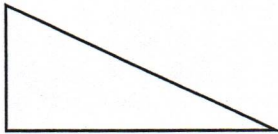Tell if each triangle is equilateral, isosceles, or scalene.

1.

_____

2.

_____

Tell if each triangle is right, acute, or obtuse.

3. _____ **4.** _____
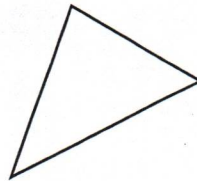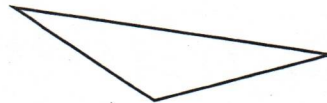
5. Draw an equilateral triangle.

Test Prep

6. Which best describes the triangle shown?

    A. Acute triangle, equilateral triangle

    B. Obtuse triangle, equilateral triangle

    C. Right triangle, scalene triangle
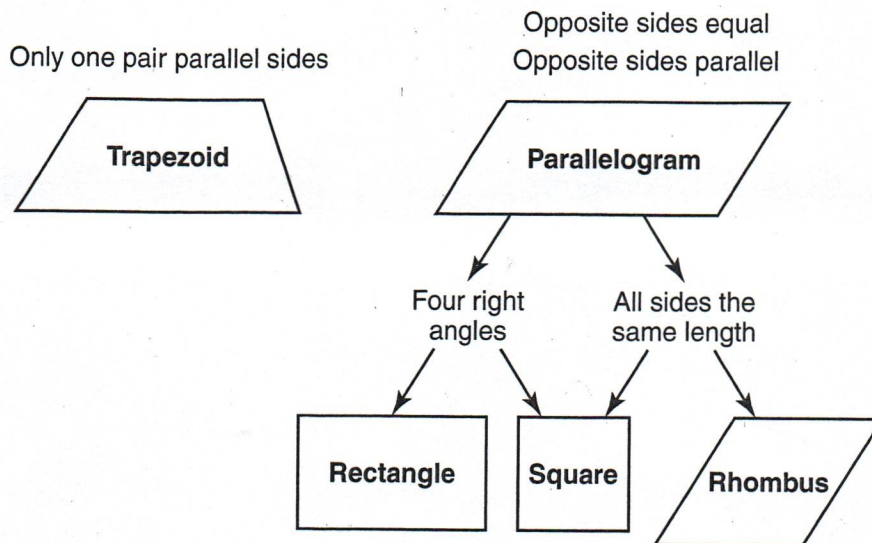
    D. Obtuse triangle, scalene triangle

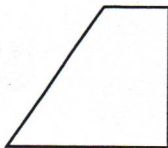**7. Writing in Math** Is it possible for an isosceles triangle to be an acute triangle? Explain.

_____

_____

Quadrilaterals

Special quadrilaterals can be separated into groups. The chart shows how they are defined.

Only one pair parallel sides

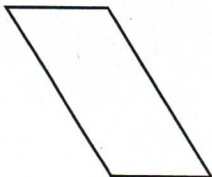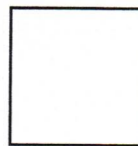Opposite sides equal
Opposite sides parallel

Trapezoid

Parallelogram

Four right angles

All sides the same length

Rectangle

Square

Rhombus

Write the name of each quadrilateral.
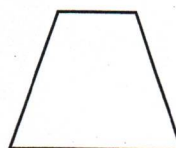
1.

_____

2.

_____

3.

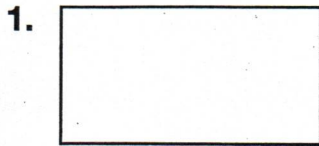_____

4.

_____

5.

_____

6.
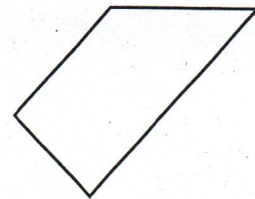
_____
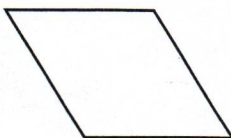
Name_____

Quadrilaterals

Write the name of each quadrilateral.

1.

_____

2.

_____

3.

_____
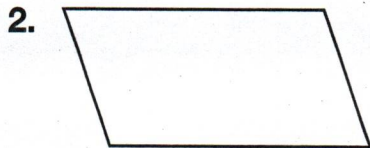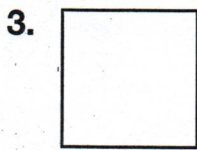
4. Reasoning Explain why a triangle is not a quadrilateral.

_____

_____

5. Draw a quadrilateral with four equal sides, but no right angles. What is its name?

_____

Test Prep

6. Which of the following correctly names the figure?

A. Rhombus   **B.** Trapezoid

C. Parallelogram   **D.** Rectangle

7. Writing in Math If you turn a rhombus upside down, will it still be a rhombus? Explain.

_____
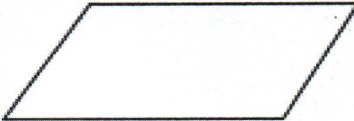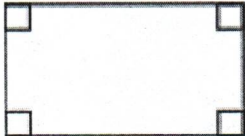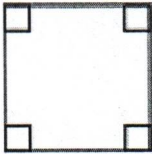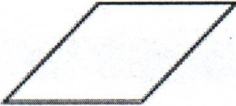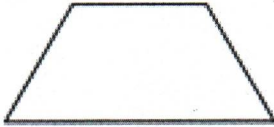
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Quadrilaterals

Getting the Idea

A **quadrilateral** is a polygon with 4 sides and 4 angles.

You can sort quadrilaterals by their side lengths and angles.

These quadrilaterals have at least one pair of opposite sides that are **parallel**. Parallel sides remain the same distance apart and never meet.

Quadrilaterals

| Name	Example	Characteristics
Parallelogram		Opposite sides have the same length. Both pairs of opposite sides are parallel.
Rectangle		Opposite sides have the same length. Both pairs of opposite sides are parallel. The 4 angles are square corners.
Square		All sides have the same length. Both pairs of opposite sides are parallel. The 4 angles are square corners.
Rhombus		All sides have the same length. Both pairs of opposite sides are parallel.
Trapezoid		Exactly 1 pair of sides is parallel.

Symmetry

Figures are **symmetric** if you can divide them in half and both halves are congruent.

The figure is
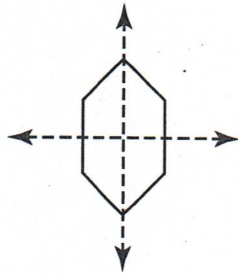symmetric.
The halves match.
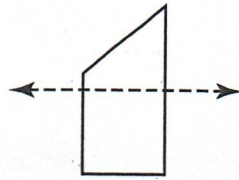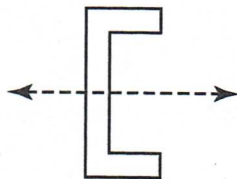
The figure is
not symmetric.
The halves do
not match.
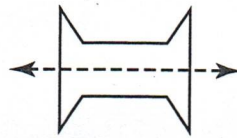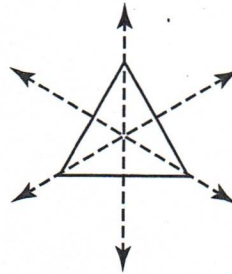
The figure is
symmetric.
The halves match.

A line which divides a symmetric figure is called a **line of symmetry.** Some figures have more than one line of symmetry.

The figure
has two lines
of symmetry.

The figure has
one line of
symmetry.

The figure has
three lines of
symmetry.

Tell whether each figure is symmetric. Write *yes* or *no*.

1.

_____

2.

_____

3.

_____

4.

_____

5.

_____

6.

_____