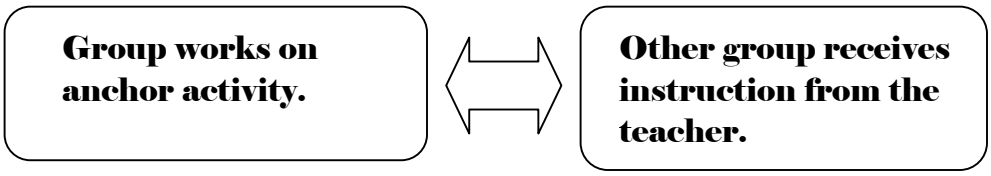
Option: **Using an Anchor Activity**

The purpose of an anchor activity is to reinforce, deepen, and extend students' understanding of the concepts presented in a unit. It provides meaningful tasks for students to work on while the teacher is working with another group or when the student has completed an assignment. Using anchor activities creates a productive work environment and is an efficient use of students' time. An anchor is to be completed over a period of time—anywhere from a week to a grading period. A student does the work independent of the teacher either individually or with a partner. It is important that all work in an anchor activity "count" and that students do not perceive it as busy work. The work may include:

- long-term projects
- selected games
- journal writing
- commercial kits
- learning centers/packets
- selected websites
- creating games, books, etc.
- books related to math

The following is a suggested sequence for implementing an anchor activity:

1. Introduce the anchor at the beginning of a new unit with all the resources needed readily available.
2. Teach the whole class to work independently and quietly on the anchor activity.
3. Provide time for practice of activity and procedures.
4. Begin small group instruction by alternating groups.



In summary, anchors work best when:

- expectations are clear.
- tasks are taught and practiced beforehand.
- students are held accountable for on-task behavior and completing work.

CUBING ANCHOR ACTIVITY

Cubing is a strategy that is designed to help students think about a topic or idea from many different perspectives. The tasks are placed on the six sides of a cube and often use commands that help support thinking (justify, describe, evaluate, connect, etc.). A cube itself may be rolled, or a number cube can be used for a cube with its faces numbered. The students complete the task on the side that matches the number roled or the side that ends face up. One cube can be differentiated or there can be different cubes for different groups of students.

Benefits of Cubing:

- Cubes can be used to differentiate activities on the basis of student readiness, interest, or learning profile.
- Cubing allows students some choice and control of their tasks.
- Cubing promotes thinking skills.

Management Suggestions for Cubing:

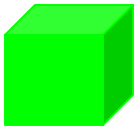
1. Teacher meets with a small group of students to introduce, review, reinforce, or assess a concept.

2. The rest of the class engages in the cubing activity.

3. Students are assigned an ability or interest level cube to work on.

4. Students roll the cube a designated number of times and the face that points up becomes the task for the student or group to complete.

5. Students are assessed on their completed work.



Plane Geometry and Relationships of Plane to Solid Figures

There are two cubes for the activity in this unit. Some of the tasks are the same and others are differentiated by readiness. Almost all of the activities are tiered. The blue cube is aligned to Grade 5 indicators and the green cube is aligned to Math A indicators. All of the activities extend the students' understanding of plane geometry and the relationships of plane to solid figures.

Making cubes: Run the cube off on the color paper indicated. Glue the cube onto an old file folder or something of similar weight. Cut the cube out, fold along lines, and assemble. Before taping the cube closed, stuff with napkins, newspaper, or something else that will help the cube maintain its shape. If you would like to use a larger cube, the templates can be enlarged and each face glued to the face of a larger cube box.

Blue Cube:

"Geometry Analogies" (2.5.1.1, 2.5.3.1, 3.5.2.1)

This activity is adapted from *theSuperSource-Tangrams-Grades 5-6*, pp 70-73. See "Geometry Analogies-Blue" card. Students use Tangram pieces to solve and create analogy puzzles based on the properties of polygons. These should be coded blue to distinguish them from the above grade level cards (green). The shapes on the card are not drawn to scale.

Hot Math Topics task cards (2.5.1.1, 3.5.2.1)

Students choose from the following cards in *Geometry and Measurement Grade 5*. These should be coded blue to distinguish them from the above grade level cards (green): 100, 99, 86, 76, 52.

"Secret Shapes" (2.5.1.1, 2.5.3.1, 3.5.2.1)

This activity is adapted from *Hot Math Topics: Geometry and Measurement Grade 5 Task #29*. Students must draw as many shapes as possible that fit the rules given. Then, they write rules for drawing a different shape and share them with a classmate. These should be coded blue to distinguish them from the above grade level cards (green).

"Geometry Scavenger Hunt" (2.5.1.1, 2.5.2.1, 2.5.1.2, 2.5.3.1, 3.5.2.1)

This activity is adapted from *Hot Math Topics: Geometry and Measurement Grade 5 Task #50*. Given a geometry word bank, students must use drawings or descriptions to record how various geometric figures appear in real life. This should be coded blue to distinguish it from the above grade level task (green).

"Polygon Puzzles" (2.5.1.1, 2.5.3.1, 3.5.2.1)

This activity is adapted from *Mathematical Reasoning through Verbal Analysis, Book 2*, p 80. Students are presented with polygons that have been subdivided into smaller figures. Each region is identified with a number. Students name the polygon that is formed by combining the regions. These should be coded blue to distinguish them from the above grade level cards (green).

"Mr. Fuddle Forgets…Again!" (3.5.2.1, 2.5.3.1)

Students help Mr. Fuddle fix his math mistakes. Students read a situation and write an explanation to Mr. Fuddle to help him understand how to measure angles using a protractor. These should be coded blue to distinguish them from the above grade level cards (green).

Green Cube:

Hot Math Topics task cards (2.6.2.4, 2.6.3.2, 2.6.2.3, 3.6.3.1, 3.6.3.2, 2.6.3.4)

Students choose from the following cards in *Geometry and Measurement Grade 5*. These should be coded green to distinguish them from the on grade level cards (blue): 49, 56, 64, 72, 78, 82, 95, 97.

"Secret Shapes" (2.6.2.4, 2.6.3.3, 2.6.3.4)

This activity is adapted from *Hot Math Topics: Geometry and Measurement Grade 5 Task #29*. Students must draw as many shapes as possible that fit the rules given. Then, they write rules for drawing a different shape and share them with a classmate. These should be coded green to distinguish them from the on grade level tasks (blue).

"Geometry Scavenger Hunt" (2.6.1.1, 2.6.2.1, 2.6.1.3, 2.6.2.3, 2.6.3.2)

This activity is adapted from *Hot Math Topics: Geometry and Measurement Grade 5 Task #50*. Given a geometry word bank, students must use drawings or descriptions to record how various geometric figures appear in real life. This should be coded green to distinguish it from the on grade level task (blue).

"Polygon Puzzles" (2.6.2.3, 2.6.1.3)

This activity is adapted from *Mathematical Reasoning through Verbal Analysis, Book 2*, p 80. Students are presented with polygons divided into regions. Students identify the types of angles created by these regions. These should be coded green to distinguish them from the on grade level cards (blue).

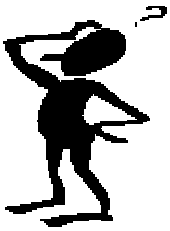
"Geometry Analogies" (2.6.2.4, 2.6.1.1, 2.6.2.2, 2.6.2.3, 2.6.1.2, 2.6.3.3, 2.6.3.4)

This activity is adapted from *theSuperSource-Tangrams-Grades 5-6*, pp 70-73. See "Geometry Analogies-Green" card. Students use manipulatives to solve and create analogy puzzles based on the properties of polygons. These should be coded green to distinguish them from the on grade level cards (blue).

"Mr. Fuddle Forgets…Again!" (3.6.3.1, 3.6.3.2, 3.6.3.3)

Students help Mr. Fuddle fix his math mistakes. Students read a situation and write an explanation to Mr. Fuddle to help him understand how to remember and use area formulas. These should be coded green to distinguish them from the on grade level cards (blue).

Secret Shapes

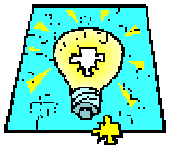


Geometry Analogies

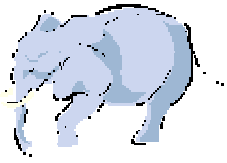
Hot Math Topics Task Cards

Geometry Scavenger Hunt

Polygon Puzzles



Mr. Fuddle Forgets...Again!



(blue/green)

Geometry Analogies: Directions

An *analogy* is when you link one thing to another based on a similarity. For example:

Hand	Mitten
Foot	?

"Hand is to mitten as foot is to _____."

There are many ways to finish this analogy. Some ideas might be: sock, shoe, slipper, boot, etc.

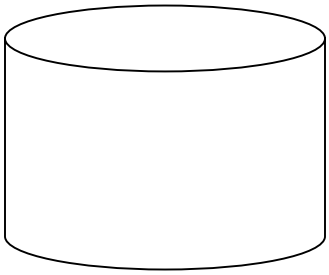
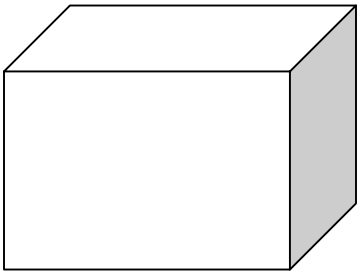
For this task, you will be solving Geometry Analogies. You will be trying to link one shape to another based on a similarity. Here is an example:

Are there other possible solutions?

Use the manipulatives provided by your teacher to help you solve the analogies. Complete at least 2 Geometry Analogies and then create at least one of your own.

(green)

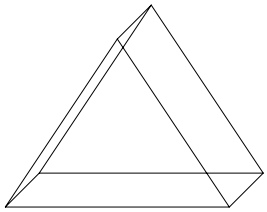
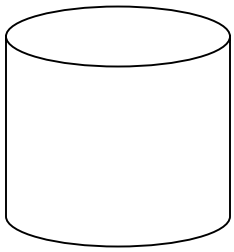
Geometry Analogy #1

What is a rule for the missing shape?

(green)

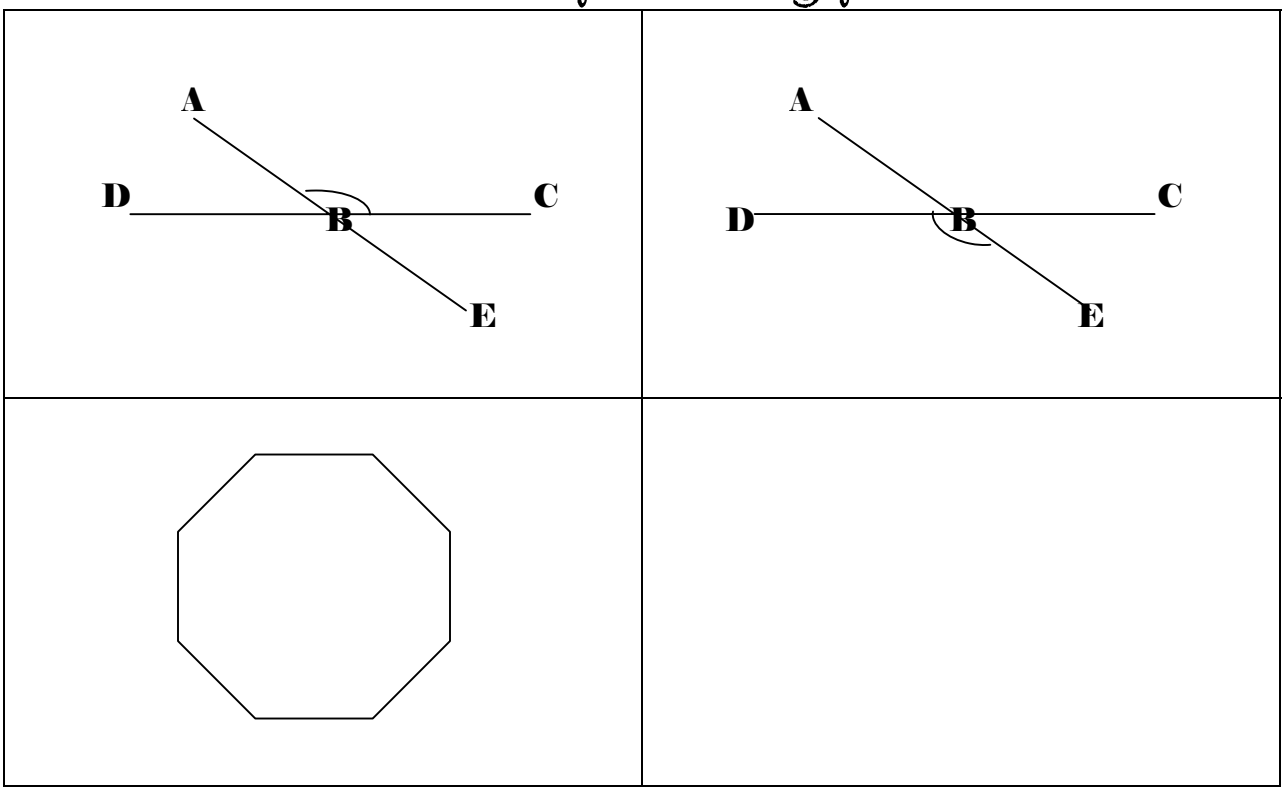
Geometry Analogy #2

What is a rule for the missing shape?

(green)

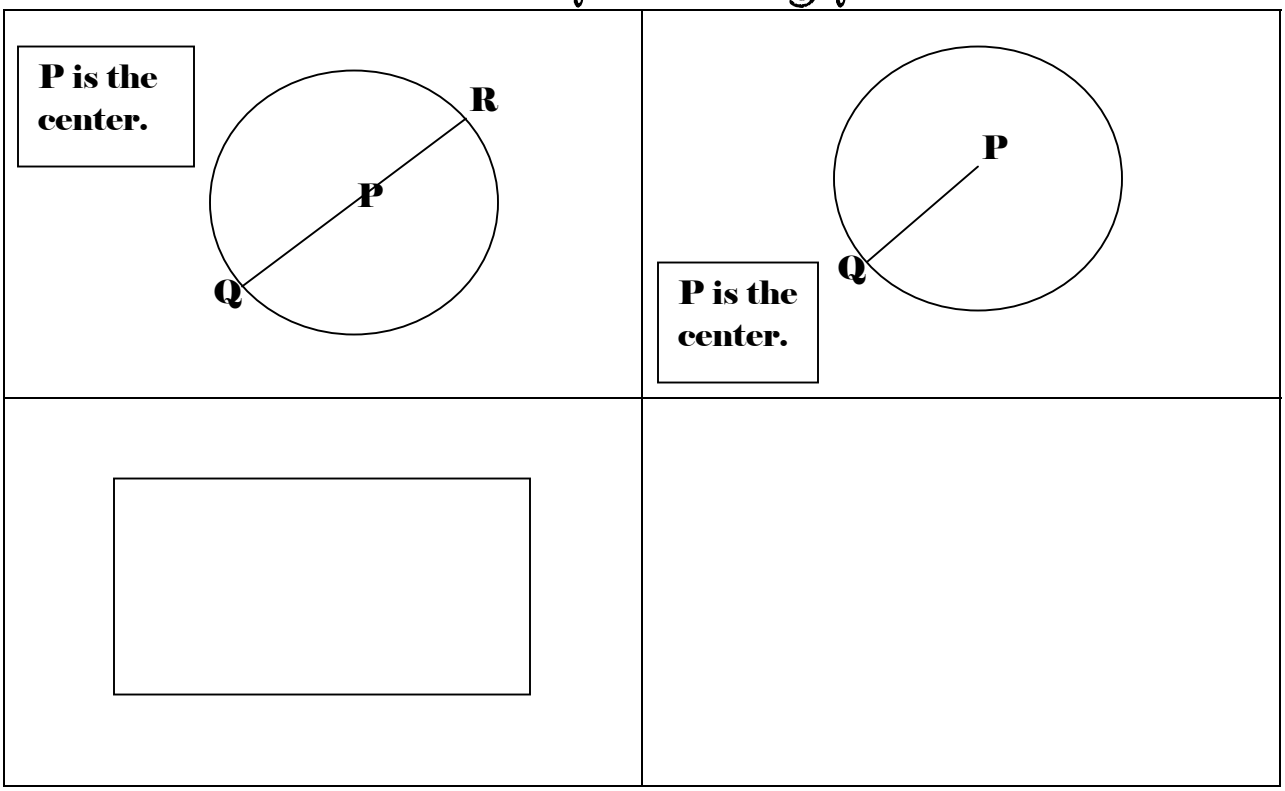
Geometry Analogy #3



What is a rule for the missing shape?

(green)

Geometry Analogy #4



What is a rule for the missing shape?

(blue/green)

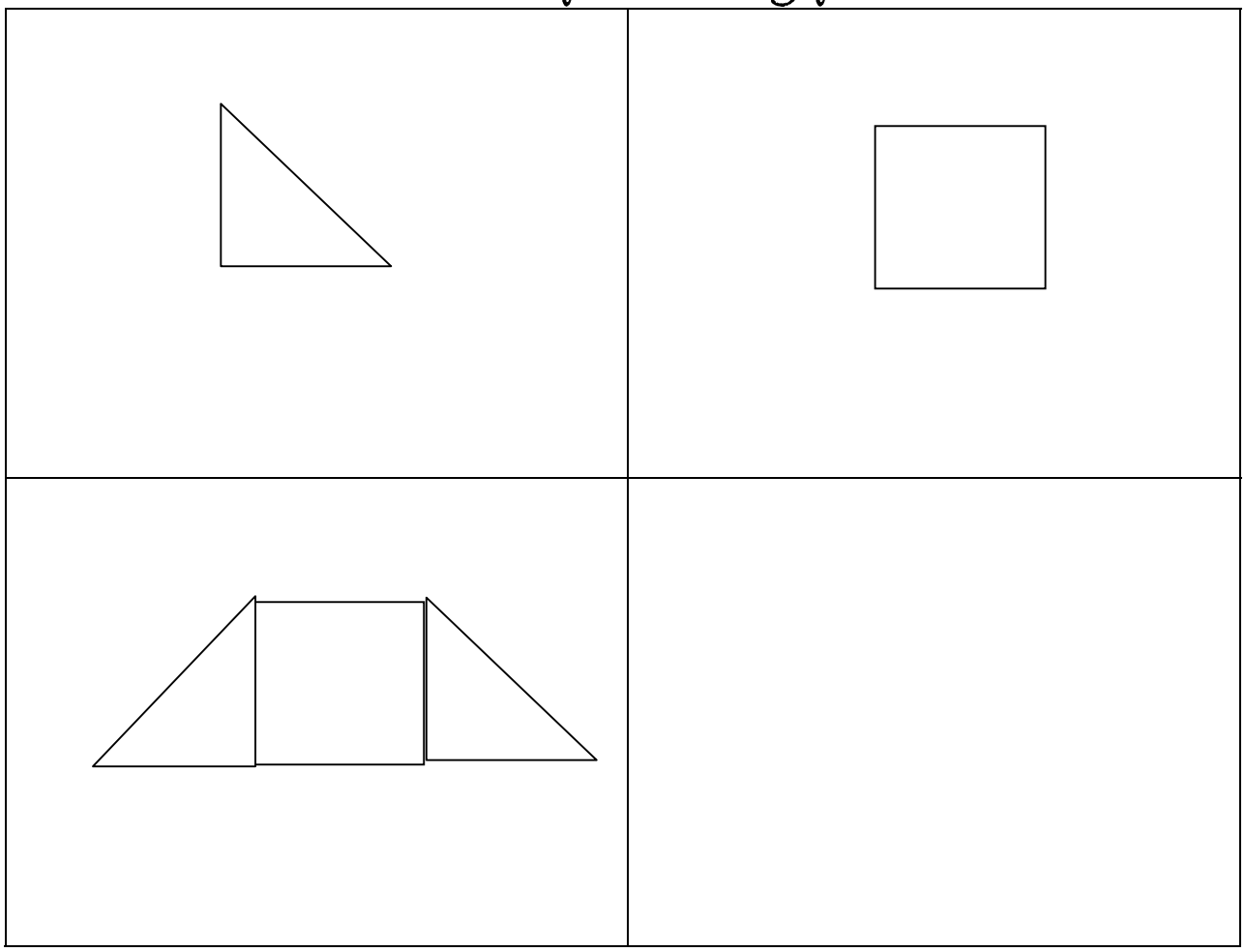
_____'s Geometry Analogy

What is a rule for the missing shape?

Is there another possibility? Explain.

(blue)

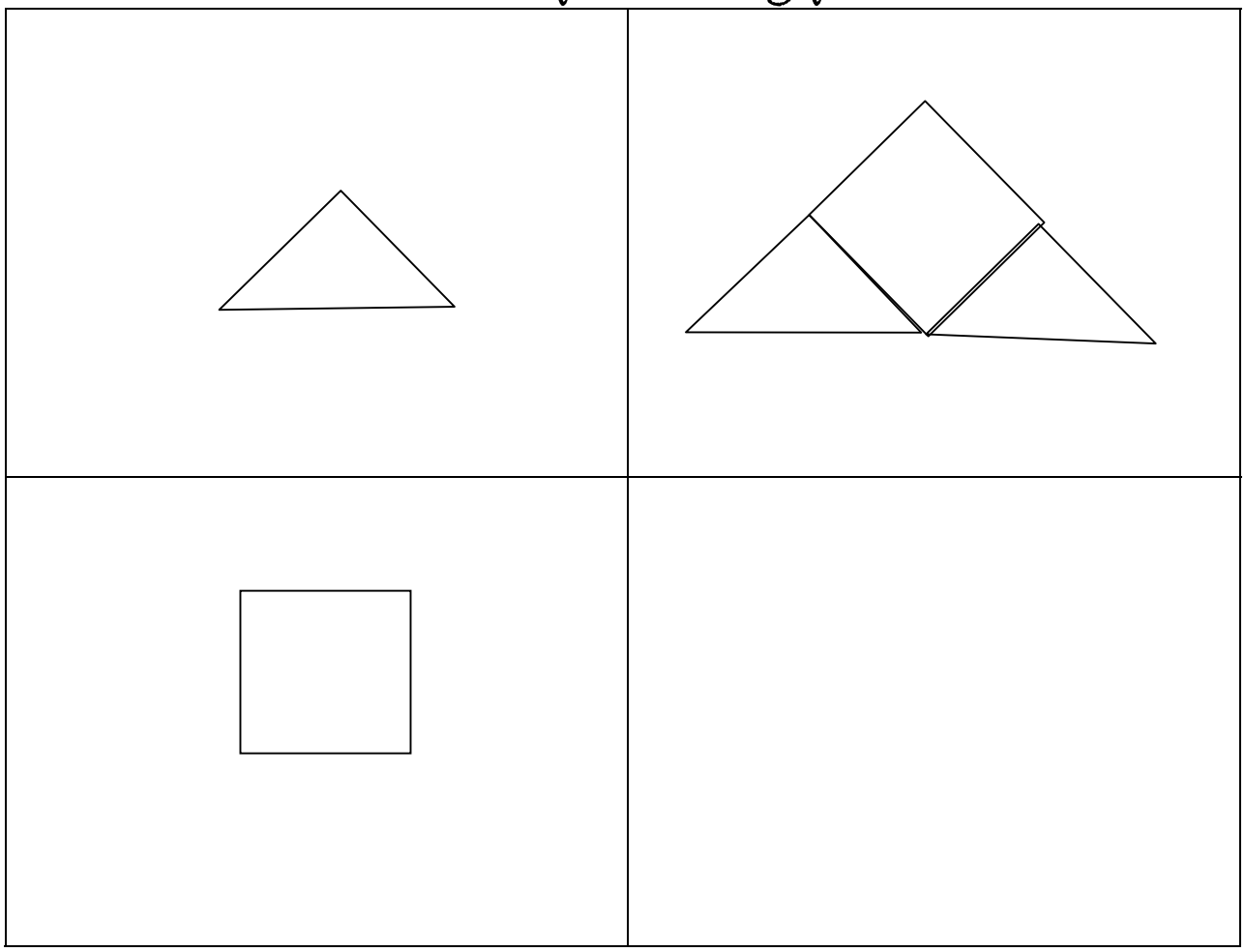
Geometry Analogy #1



What is a rule for the missing shape?

(blue)

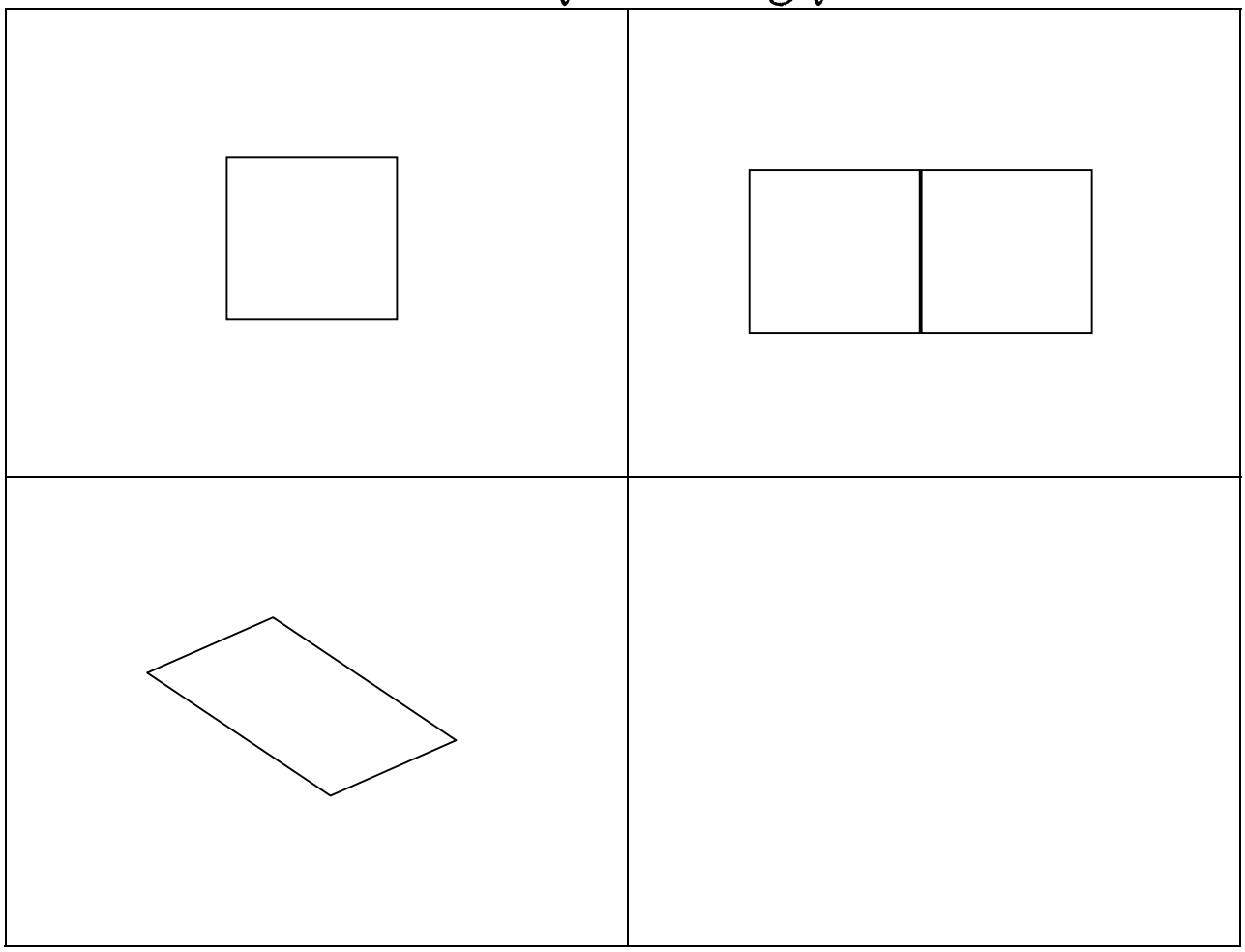
Geometry Analogy #2



What is a rule for the missing shape?

(blue)

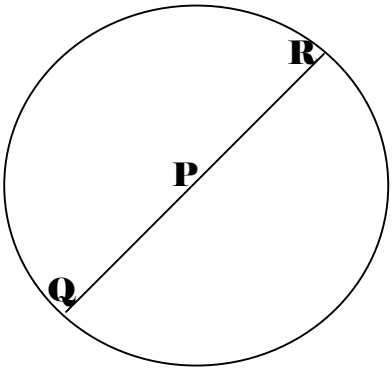
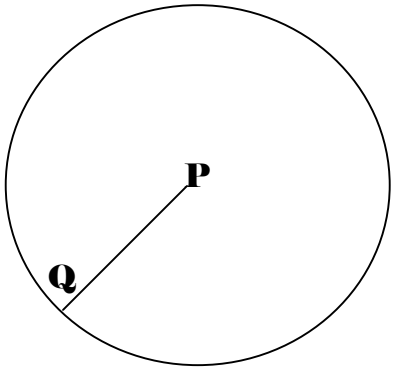
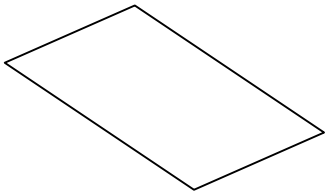
Geometry Analogy #3



What is a rule for the missing shape?

(blue)

Geometry Analogy #4

P is the center. 	**P is the center.** 
	

What is a rule for the missing shape?

(green)

Geometry Scavenger Hunt

Geometry Term	Drawing and description
At least 2 diagonals	
Sum of interior angles is 1080^0	
An isosceles or scalene triangle	
A circular base	
Triangular faces	
An area greater than 64 sq. cm.	
A convex figure	
A symmetrical figure	
One pair of parallel lines.	
One pair of perpendicular lines	

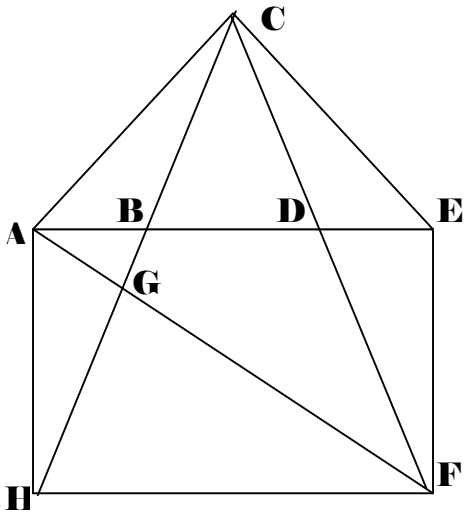
(blue)

Geometry Scavenger Hunt

Geometry Term	Drawing and description
At least 2 acute angles	
At least 2 obtuse angles	
At least 3 vertices	
At least 4 faces	
A radius of at least 5 cm.	
A concave figure	
A convex figure	
A symmetrical figure	
One pair of parallel lines.	
One pair of perpendicular lines	

POLYGON PUZZLES #1 (GREEN)

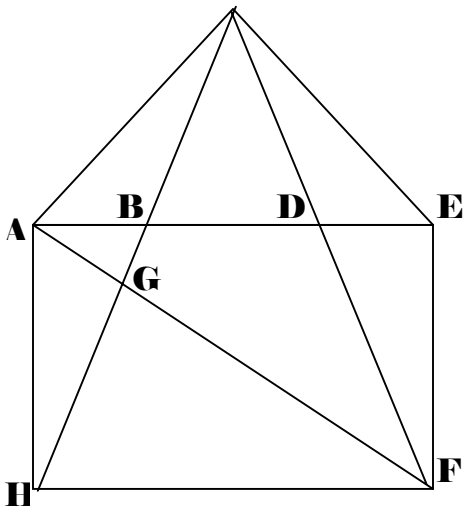
Using the pentagon, name at least one example of each indicated angle.



Example	Type of Angle
	Supplementary Angles
	Complementary Angles
	Adjacent Angles
	Your own:

POLYGON PUZZLES #2(GREEN)

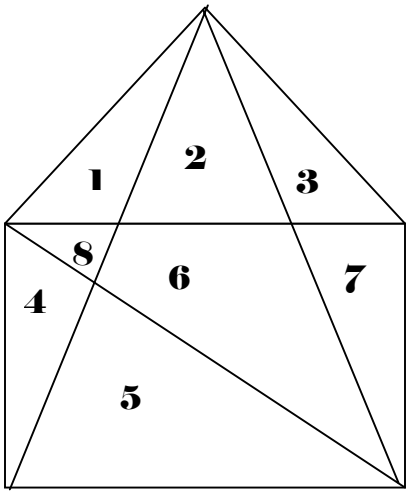
Name the type of angle(s) each example represents. Use the pentagon as a reference.



Example	Type of Angle
∠AGH and ∠CGF	
∠ADF and ∠EDF	
∠CDA and ∠ADF	
Your own:	

POLYGON PUZZLES #1 (BLUE)

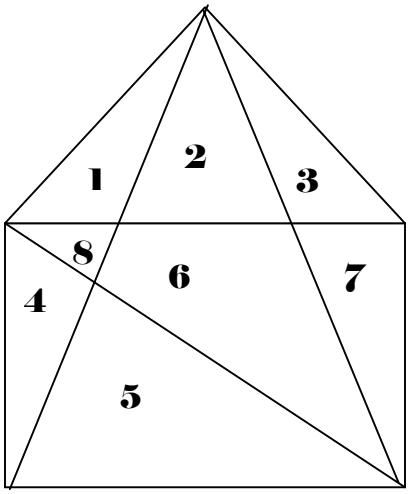
Name the polygons that are formed by combining the numbered regions.



Region	Polygon
6 and 7	
2, 3, and 7	
4, 5, 6, and 8	
Your own:	

POLYGON PUZZLES #2(BLUE)

Name at least one example of the regions that, when combined, form the indicated polygons.

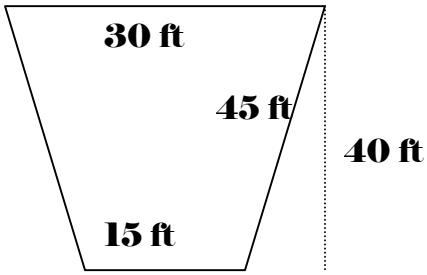


Region	Polygon
	Quadrilateral
	Right triangle
	Hexagon
	Your own:

(green) # Mr. Fuddle Forgets...Again!

Mr. Fuddle's ideas about math are always a little bit, well, off. Today is no exception. Your teacher has asked Mr. Fuddle to calculate the areas of some geometric shapes (not drawn to scale). Here are the results:

21



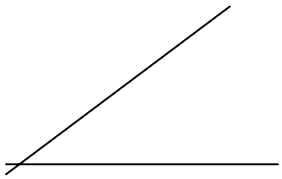
135 sq ft

Check Mr. Fuddle's work. Where has he gone wrong? What are some easy ways to remember area formulas? Write a friendly letter to Mr. Fuddle explaining your ideas.

(blue) # Mr. Fuddle Forgets...Again!

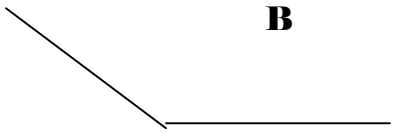
Mr. Fuddle's ideas about math are always a little bit, well, off. Today is no exception. Your teacher has told Mr. Fuddle to practice measuring angles using a protractor. These are the results:

A



140°

B



130°

Use a protractor to decide whether Mr. Fuddle has finally mastered a math objective, or whether he needs some more work. Write a friendly letter to Mr. Fuddle giving him some helpful hints about measuring angles. Be sure to use specific examples from Mr. Fuddle's work AND geometry terms in your letter.

(blue/green)

Secret Shapes

Directions

1. For each "Secret Shape" you will be given a set of clues. Read all of the clues before solving the puzzle.

2. Draw the secret shape and name it. If you can think of another shape that fits the clues, draw it and name it.

3. After you have completed at least 2 secret shapes, write your own set of clues for a secret shape. Give to it a friend to solve.

(blue)

Secret Shape #1

- It's a quadrilateral.
- One of its angles is less than 90^0.
- It has only one pair of parallel line segments.

Secret Shape #2

- It has one 90^0 angle.
- It has two acute angles.
- It has at least three vertices.

(blue)

Secret Shape #3

- It is convex.
- It has 5 sides.
- It has at least one 90^{o} angle.

Secret Shape #4

- It is concave.
- It has at least one set of perpendicular line segments.
- It has at least one acute angle.
- It is not a quadrilateral.

(blue/green)

_____'s Secret Shape

's Secret Shape

(green)

Secret Shape #1

- The sum of its interior angles is 720^{o}.
- It is concave.
- It has at least one obtuse angle.

Secret Shape #2

- It has two complementary angles.
- It has no diagonals.
- It is a polygon.

(green)

Secret Shape #3

- **It is convex.**
- **The sum of its interior angles is 540°.**
- **It has at least one 90° angle.**

Secret Shape #4

- **It is concave.**
- **It has at least one set of perpendicular line segments.**
- **It has at least one set of adjacent supplementary angles.**
- **It is not a quadrilateral.**