Brockton High School
Content: Math I
Week of: June 15 to June 24, 2020

Greetings Math I Students! We hope you are safe and well with your families! This assignment is for this week, use your time wisely. You do not have to complete this in one sitting. Here is the lesson plan for this week:

Goals for This Week
Learning Objectives: Students will be able to: 1. Know precise definitions of line segment, angle, and distance along a line. 2. Construct parallel lines. *(Standards G.CO.1 and G.CO.4)*
Literacy Objectives: Students will be able to: 1. Explain the logic of an argument or solution 2. Read, break down, and solve a word problem. 3. To detect the fallacy in an argument or proof 4. Create, interpret and explain a table, chart or graph. *(https://www.bpsma.org/schools/brockton-high-school/about-us/mission-literacy-charts)*
Standards for Mathematical Practice: Students should always look to develop the following habits of mind when working on mathematics: • Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning.

Carnegie Learning (use with Carnegie Resources provided below)
(Log-in through Clever – see below)

Instructional Video Links: Please watch the video below to help guide you.

- Geometric Components of Rigid Motion – Lesson Overview 1
- Constructing Parallel Lines – Lesson Overview 1

Printable Resources:
Please see the attached lesson document "Put Your Input In, Take Your Output Out"
(starting on page M3-53)

Practice Activities:
On-Line:
All students now have access to an on-line learning program called Carnegie Learning/Mathia!

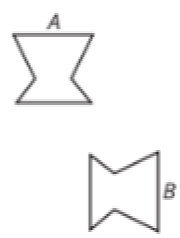
- If you are new to Mathia: Please see the log-in information below
- If you can get online, please complete the lessons below from IM 1 Module 6: Analyzing:
  1. Lines, Rays, Segments, and Angles,
  2. Rigid Motion,
  3. Triangle Congruence

No Internet Access:
Please see information on printable resources.

Key Terms:

- **line** – A line is made up of points that extend infinitely in two opposite directions. A line is straight and has only one dimension.
- **ray** – A ray consists of a point P on a straight line and all points on the line on one side of P.
- **line segment** – A line segment is a portion of a line between two points, called the endpoints.
- **angle** – An angle is a figure that is formed by two rays that extend from a common point called the vertex.

Extension Activities:
See *Stretch* on M5-66 of the document.
Determine three different transformation machines that could be used to get the figure at position A to position B. Describe the geometric objects you used to create each machine. Draw an example of a transformation performed by the transformation machine.



Log-in Information

1. Log-in to Clever
2. Click on the Carnegie Learning logo

Additional Support

Email:
Please email your math teacher with specific questions.

Office Hours:
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Goals for This Week
Learning Objectives: Students will be able to: 1. Identify the hypothesis and conclusion of a conditional statement 2. Explore the truth values of conditional statements 3. Use a truth table 4. Differentiate between postulates and theorems *(Standards G.CO.1, G.CO.2, G.CO.5)*
Literacy Objectives: Students will focus on: 1. Reasoning a. to use analogies and/or evidence to support one's thinking b. to explain the logic of an argument or solution. c. To detect the fallacy in an argument or proof. *(https://www.bpsma.org/schools/brockton-high-school/about-us/mission-literacy-charts)*
Standards for Mathematical Practice: Students should always look to develop the following habits of mind when working on mathematics: • Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning.

Carnegie Learning (use with Carnegie Resources provided below)
(Log-in through Clever – see below)

Instructional Video Links: Please watch the video below to help guide you.

- Overview Video: Formal Reasoning in Euclidean Geometry

Printable Resources:

Please see the attached lesson document:

- The Elements – Formal Reasoning in Euclidean Geometry

Key Terms:

- **Counterexample –** a specific example that shows a general statement is not true
- **Conditional Statement** – a statement that can be written in the form "if *p* then *q*"
- **Hypothesis** – the "if" part of an "if–then" statement
- **Conclusion** – the "then" part of an "if–then"
- **Truth value** – whether the conditional statement is true or false
- **Truth table** – a table that summarizes all possible truth values for a conditional statement
- **Postulate** – a statement that is taken to be true without proof
- **Euclidean Geometry** – the study of geometry developed by Euclid using a small number of postulates
- **Linear Pair Postulate** – If two angles form a linear pair, then the angles are supplementary
- **Segment Addition Postulate** – If point B is on $\overline{AC}$ and between points A and C, then $AB + BC = AC$
- **Angle Addition Postulate** – If point D lies in the interior of $\angle ABC$, then $m\angle ABD + m\angle DBC = m\angle ABC$.

Practice Activities:

On-Line:
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- If you are new to Mathia: Please see the log-in information below
- If you can get online, please complete the lessons below from **IM 1 Mod 6: Analyzing Geometric Functions**
  1. Lines, Rays, Segments, and Angles
  2. Rigid Motion
  3. Triangles Congruence

No Internet Access:
Please see information on printable resources.

Extension Activities:

See *Stretch* on page M5-141:

Let the variable 'p' represent the statement "the figure is a square" and let the variable 'q' represent the statement "the figure is a quadrilateral". Complete a truth table for the statements, then determine if conditional statements are commutative, that is $p \rightarrow q$ is the same as $q \rightarrow p$, by completing a truth table for $q \rightarrow p$.

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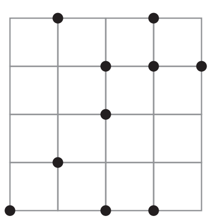
1

Put Your Input In, Take Your Output Out

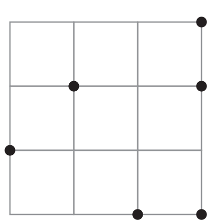
Geometric Components of Rigid Motions

Warm Up

1. Identify the vertices that form a rectangle. Explain why the figure is a rectangle.



2. Identify four vertices that form a trapezoid. Explain why the figure is a trapezoid.



Learning Goals

- Know precise definitions of line segment, angle, and distance along a line.
- Construct parallel lines.

Key Terms

- point
- line
- collinear points
- line segment
- angle
- ray
- rotation angle

You know a lot about rigid motions, such as translations, reflections, and rotations. How do you use straight lines and angles to represent rigid motion transformations?

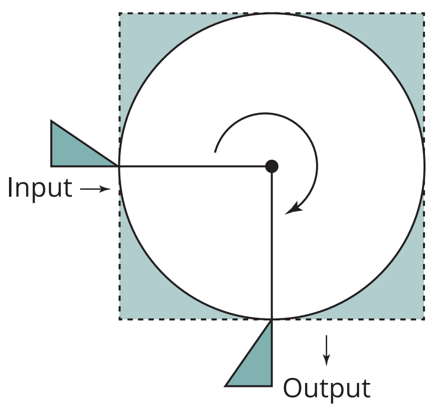
GETTING STARTED

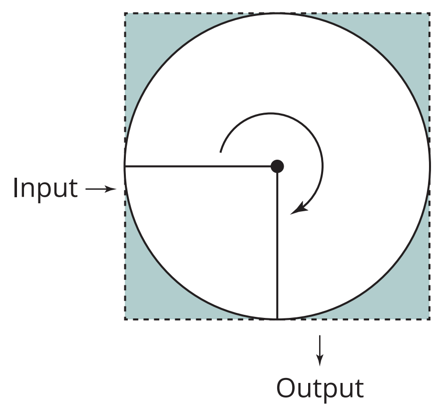
Transformation Machine

You have learned about function machines, which take a value as input and output another value. In this topic, you will learn to think about geometric rigid motions as functions. These functions can be represented with function machines as well, or transformation machines.

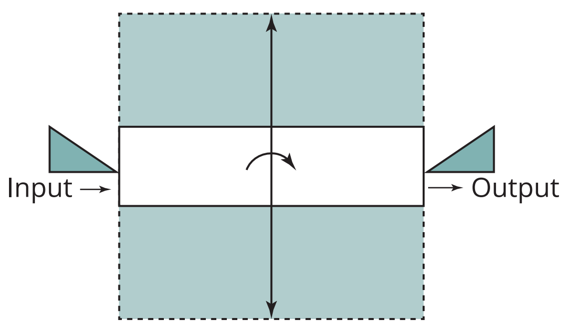
1. Each transformation machine on the left shows a different rigid motion. For each transformation machine on the right, draw an input shape on patty paper. Then apply the transformation and draw the output shape.

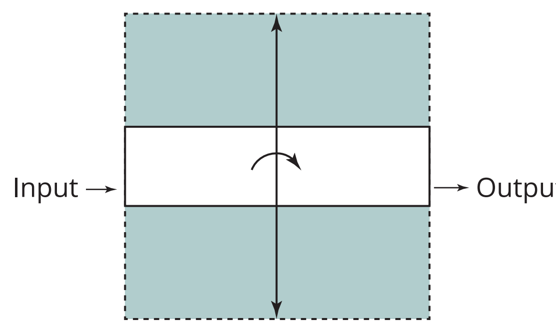
a.



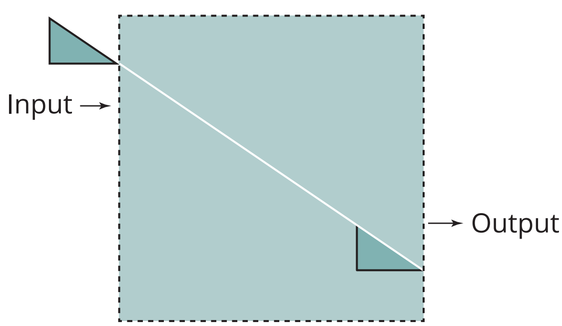


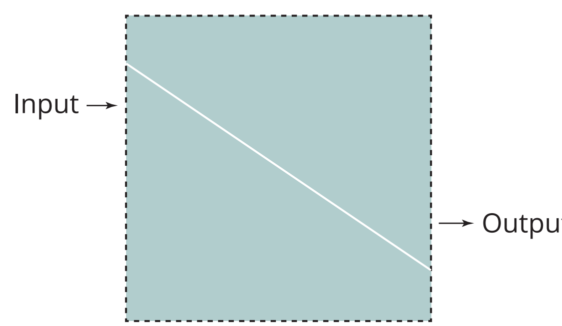
b.





c.





2. Identify the rigid motion represented by each transformation machine.

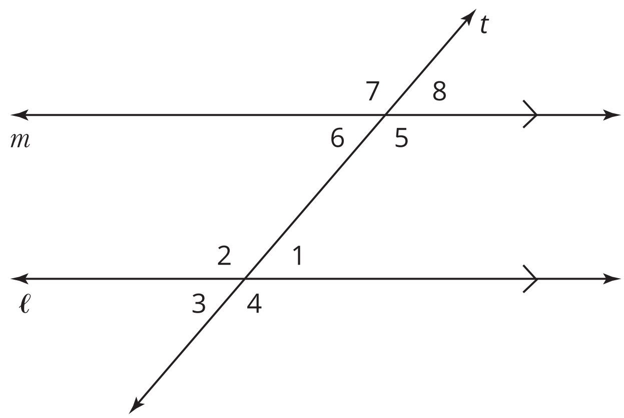
3. Describe each transformation function. Explain how each input shape is "carried" by geometric objects in the transformation machine to result in the output shape.

ACTIVITY **1.1**

Constructing Parallel Lines

In previous lessons, you constructed perpendicular lines using a compass and straightedge. You can also construct parallel lines.

Recall that when a pair of parallel lines is crossed by a transversal, several pairs of congruent angles are formed.

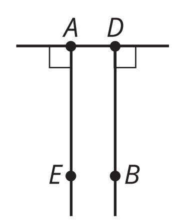


Corresponding angles: $\angle 8 \cong \angle 1$

Alternate interior angles: $\angle 1 \cong \angle 6$

Alternate exterior angles: $\angle 4 \cong \angle 7$

Consider the two segments $\overline{AE}$ and $\overline{DB}$ shown. The line segments are parallel.

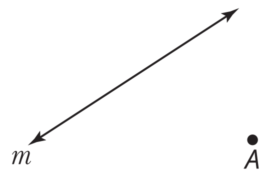


1. Explain how you know the two segments are parallel.

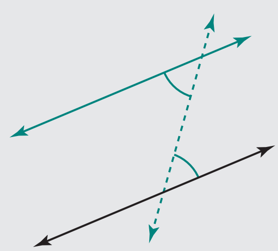
Ask yourself:

How can you tell whether two lines graphed on a coordinate plane are parallel?

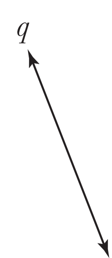
2. Use your reasoning from Question 1 to construct a line parallel to line *m* through point *A*. Describe your process.



3. Explain why Gage is correct.

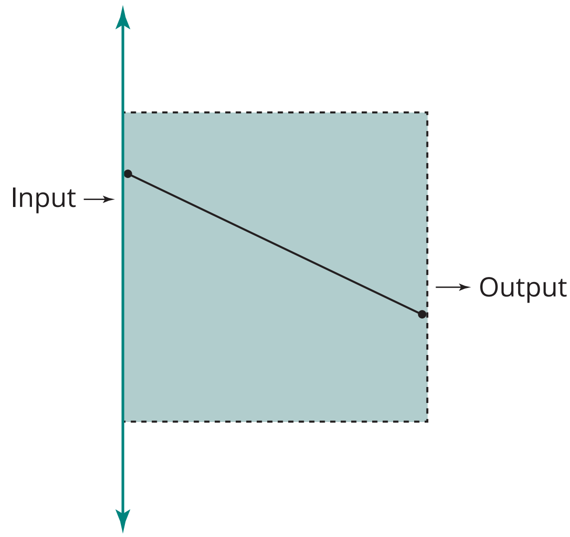
> **Gage**
>
> You can duplicate any angle measure, not just right angles, to construct parallel lines.
>
> 

4. Use Gage's method to construct a line parallel to line *q*.

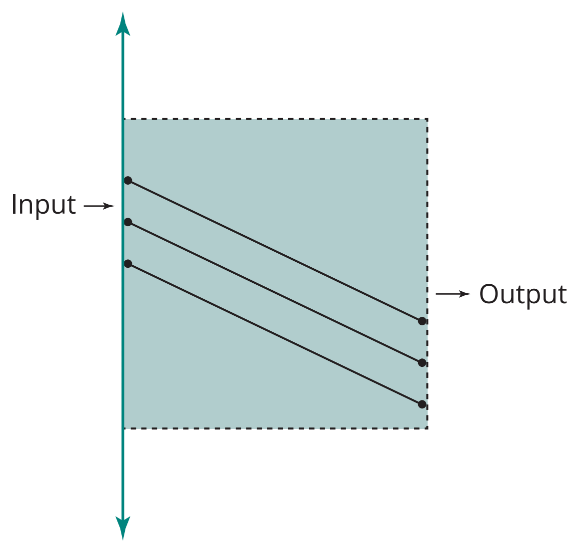


5. **Consider the translation machine from the Getting Started.**

   a. **Suppose that the input to the machine is a line as shown. Describe the output of the translation machine.**



   b. **Suppose that the translation machine is a set of parallel line segments as shown. How does this change the output of the machine when the input is a line?**



ACTIVITY 1.2

Lines, Line Segments, and Angles

Points and lines are essential building blocks of geometry. They are called undefined terms.

A **point** is described simply as a location. A point in geometry has no size or shape, but it is often represented using a dot. In a diagram, a point can be labeled using a capital letter. A **line** is described as a straight, continuous arrangement of an infinite number of points. A line has an infinite length, but no width. Arrowheads are used to indicate that a line extends infinitely in opposite directions. In a diagram, a line can be labeled with a lowercase letter positioned next to the arrowhead.

Points that lie along the same line are called **collinear points**. A **line segment** is a part of a line between two points on the line, called the endpoints. A distance along a line is the length of a line segment connecting two points on the line. A line segment *AB* has the distance *AB*.

Remember:

A plane extends infinitely in all directions in two dimensions and has no thickness.

1. Identify the line segments and distances that were used in the translation machines in the previous activity.

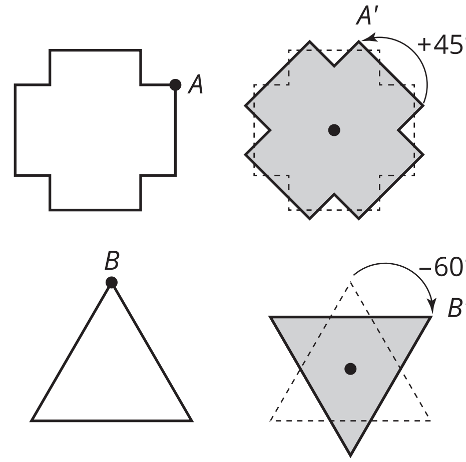
2. Are the line segments in the translation machine in Question 5, part (b), congruent? Use patty paper to justify your answers, and explain your reasoning.

Remember:

Congruent line segments are line segments that have the same length. They represent equal distances.

An **angle** is a set of points consisting of a vertex point and two rays extending from the vertex point. A **ray** is a portion of a line that begins with a single point and extends infinitely in one direction.

A **rotation angle** is a directed angle based on a circle. Positive rotation angles turn counterclockwise, and negative rotation angles turn clockwise.



3. Identify the rotation angle that was used in the rotation machine in the Getting Started.

NOTES

TALK the TALK

Shake It All About

The diagram on the next page shows a transformation machine. The transformation machine is designed to provide a path for each of the input shapes, a triangle and a square, to move from the start line through the machine and map back onto itself. The transformation is comprised of line segments, figures with and without center points, and two target shapes. To use the transformation machine you must first trace the target shape onto patty paper.

The transformation machine has these rules:

- The elements in the transformation machine provide ways to move your input shape. Your input shape must be connected to any of the lines or figures in the transformation machine by at least one vertex in order for it to be translated, rotated, or reflected.
- Any dashed or solid line allows you to translate your input shape.
- Any figure with a solid center point allows you to rotate your input shape around that center. The figure carries your input shape around the rotation.
- Any figure with a dashed line allows you to reflect your input shape across that line. The figure carries your input shape across the reflection.

Use the larger diagram of the transformation machine located at the end of the lesson.

1. Copy one of the target shapes onto patty paper. Place the input shape on the start line in an orientation of your choosing. Then determine a sequence of translations, reflections, and rotations that maps the input shape onto the corresponding target shape.

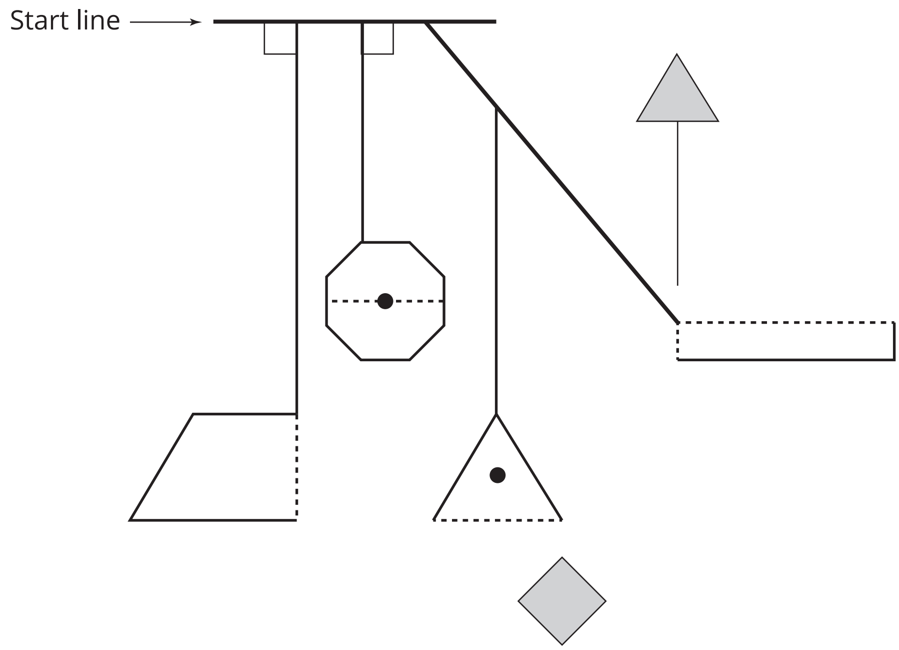
NOTES

Think about:

You can use this diagram to help you predict the effects of your transformations before you test them on the larger diagram at the end of the lesson.

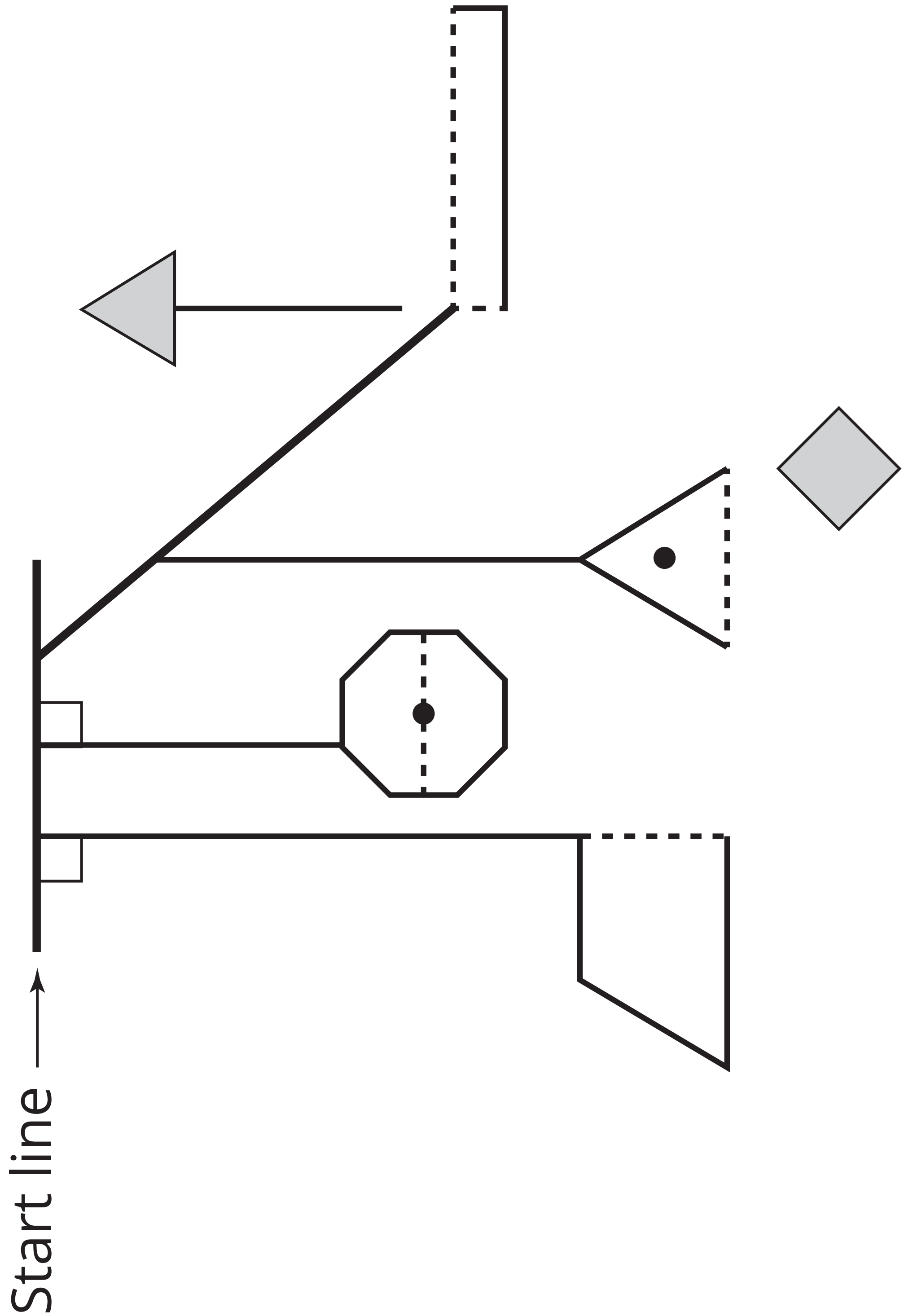
Remember:

A pre-image is a figure prior to a transformation. The image is the figure after the transformation.



2. **Describe the sequence of transformations you used to transform each pre-image to each image. Label points on the transformation machine so that you can precisely describe your transformations.**

3. **Consider the transformations performed on each pre-image to map it onto the image. Are the images congruent to the pre-images? Explain why or why not.**


Start line

Assignment

Write

Complete each sentence with a term from the box.

line segment	point	collinear points	line	ray	angle	rotation angle

1. A(n) __________ is a location in space.
2. A(n) __________ is a straight continuous arrangement of an infinite number of points.
3. Points that are all located on the same line are __________.
4. A(n) __________ is a portion of a line that includes two points and all of the collinear points between the two points.
5. A(n) __________ is a portion of a line that begins with a single point and extends infinitely in one direction.
6. A(n) __________ is a directed angle.
7. A(n) __________ is a set of points consisting of a vertex point and two rays extending from the vertex point.

Remember

Translations can be described using lines and line segments. Reflections can be described using lines. Rotations can be described using rotation angles.

Pre-images transformed by rigid motions such as translations, reflections, and rotations are congruent to their images.

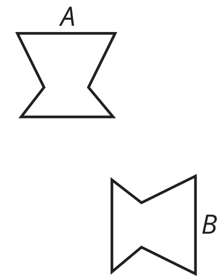
Practice

Create a transformation machine to perform each sequence of transformations. Describe the geometric objects you used to create each machine. Draw an example of a transformation performed by the transformation machine.

1. translate a figure to the left then translate the figure up
2. translate a figure down then reflect the figure across a horizontal line
3. rotate a figure clockwise 180° then translate the figure to the right
4. reflect a figure across a vertical line then rotate the figure clockwise 90°
5. translate a figure up then reflect the figure across a vertical line
6. rotate a figure clockwise 90° then reflect the figure across a horizontal line
7. translate a figure to the right then reflect the figure across a horizontal line
8. reflect a figure across a horizontal line then translate the figure down
9. translate a figure to the left, rotate the figure counterclockwise 90°, then reflect the figure across a vertical line
10. rotate a figure clockwise 90°, translate the figure down, and then reflect the figure across a horizontal line

Stretch

Determine three different transformation machines that could be used to get the figure at position A to position B. Describe the geometric objects you used to create each machine. Draw an example of a transformation performed by the transformation machine.

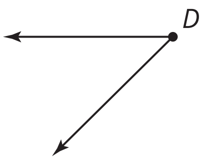


Review

1. Construct each figure described.

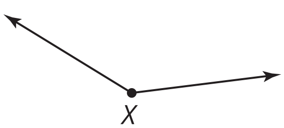
   a. Duplicate $\overline{AB}$.

   b. Duplicate $\angle D$.

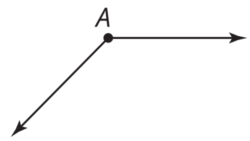


2. Construct the angle bisector of each given angle.

   a.



   b.



3. Determine whether the two lines are parallel, perpendicular, or neither. Explain your reasoning.

   a. $2x - 3y = 15$ and $y = -\frac{3}{2}x - 10$

   b. $-\frac{6}{5}x + 4y = \frac{1}{5}$ and $-3(x - \frac{10}{3}y) = 17$

1

The Elements

Formal Reasoning in Euclidean Geometry

Warm Up

Solve for x.

1. $x + 4x = 90$

2. $0.5x + 2x = 90$

3. $x + 2x = 180$

4. $0.5x + 4x = 180$

Learning Goals

- Identify the hypothesis and conclusion of a conditional statement.
- Explore the truth values of conditional statements.
- Use a truth table.
- Differentiate between postulates and theorems.

Key Terms

- counterexample
- conditional statement
- hypothesis
- conclusion
- truth value
- truth table
- postulate
- Euclidean geometry
- Linear Pair Postulate
- Segment Addition Postulate
- Angle Addition Postulate

You have created many conjectures in geometry. How can you reason more formally in Euclidean geometry with postulates and theorems?

GETTING STARTED

If . . ., Then . . .

Decide whether each statement is true or false and explain your reasoning.

1. All rectangles are quadrilaterals.

2. All rectangles are squares.

3. If it rains today, then it will not rain tomorrow.

ACTIVITY
1.1 Counterexamples

In previous lessons—and in previous grades—you have used different kinds of reasoning to arrive at conclusions and to justify those conclusions. In this lesson and the next, you will start to use a more exact kind of reasoning commonly used in formal mathematics. When using this kind of reasoning, it is important to be able to identify false conclusions.

There are two reasons why a conclusion may be false. Either the assumed information is false, or the conclusion does not necessarily follow from the hypothesis.

Think about:

If you are reading this sentence, then your first language must be English. This is an invalid argument. Both the assumed information and conclusion might be true, but the conclusion does not necessarily follow from the given.

1. **Derek tells his little brother that it will not rain for the next 30 days because he "knows everything." Why is this conclusion false?**

2. **The sum of the interior angles of a figure is 360°, so the figure must be a square. Why is this conclusion false?**

3. **Write an example of a conclusion that is false because the assumed information is false.**

4. **Write an example of a conclusion that is false because the argument is not valid.**

To show that a statement is false, you can provide a *counterexample*. A **counterexample** is a specific example that shows that a general statement is not true.

5. Provide a counterexample for each statement to demonstrate that they are not true.

a. All prime numbers are odd.

b. The sum of the measures of two acute angles is always greater than 90º.

ACTIVITY 1.2 Conditional Statements and Truth Tables

A **conditional statement** is a statement that can be written in the form "If p, then q." It can be written using symbols as $p \rightarrow q$, which is read as "p implies q." The **hypothesis** of a conditional statement is the variable p. A hypothesis is the "if" part of an "if-then" statement. The **conclusion** of a conditional statement is the variable q. A conclusion is the "then" part of an "if-then" statement.

The **truth value** of a conditional statement is whether the statement is true or false. If a conditional statement could be true, then the truth value of the statement is considered true. The truth value of a conditional statement is either true or false, but not both.

Worked Example

You can identify the hypothesis and conclusion from a conditional statement.

Conditional Statement

$$\underbrace{\text{If } x^2 = 36}_{\textbf{Hypothesis}},\ \underbrace{\text{then } x = 6 \text{ or } x = -6}_{\textbf{Conclusion}}.$$

1. Consider the conditional statement.
If the measure of an angle is 32°, then the angle is acute.

a. Identify the hypothesis *p*.

b. Identify the conclusion *q*.

Use the given conditional statement in Question 1 to answer Questions 2 through 5.

2. If *p* is true and *q* is true, then the truth value of a conditional statement is true.

a. What does the phrase "If *p* is true" mean in terms of the conditional statement?

b. What does the phrase "If *q* is true" mean in terms of the conditional statement?

c. Explain why the truth value of the conditional statement is true if both *p* and *q* are true.

3. **If *p* is true and *q* is false, then the truth value of a conditional statement is false.**

   a. **What does the phrase "If *p* is true" mean in terms of the conditional statement?**

Continue to use this conditional statement to respond to Questions 3 through 5.

If the measure of an angle is 32°, then the angle is acute.

   b. **What does the phrase "If *q* is false" mean in terms of the conditional statement?**

   c. **Explain why the truth value of the conditional statement is false if *p* is true and *q* is false.**

4. **If *p* is false and *q* is true, then the truth value of a conditional statement is true.**

   a. **What does the phrase "If *p* is false" mean in terms of the conditional statement?**

   b. **What does the phrase "If *q* is true" mean in terms of the conditional statement?**

Think about:

If *p* is false and *q* is true, the truth value is always true. Can you think of other examples that show this?

   c. **Explain why the truth value of the conditional statement is true if *p* is false and *q* is true.**

5. **If p is false and q is false, then the truth value of a conditional statement is true.**

   a. **What does the phrase "If p is false" mean in terms of the conditional statement?**

   b. **What does the phrase "If q is false" mean in terms of the conditional statement?**

   c. **Explain why the truth value of the conditional statement is true if both p and q are false.**

A **truth table** is a table that summarizes all possible truth values for a conditional statement $p \rightarrow q$. The first two columns of a truth table represent all possible truth values for the variables p and q. The last column represents the truth value of the conditional statement $p \rightarrow q$.

The truth values for the conditional statement "If the measure of an angle is 32°, then the angle is acute" is shown.

Worked Example

The truth value of the conditional statement $p \rightarrow q$ is determined by the truth value of p and the truth value of q.

- If p is true and q is true, then $p \rightarrow q$ is true.
- If p is true and q is false, then $p \rightarrow q$ is false.
- If p is false and q is true, then $p \rightarrow q$ is true.
- If p is false and q is false, then $p \rightarrow q$ is true.

p	q	$p \rightarrow q$
the measure of an angle is 32°	**the angle is acute**	**If the measure of an angle is 32°, then the angle is acute.**
T	T	T
T	F	F
F	T	T
F	F	T

6. **Consider the conditional statement.**
If m$\overline{AB} = 6$ inches and m$\overline{BC} = 6$ inches, then $\overline{AB} \cong \overline{BC}$.

   a. **What is the hypothesis *p*?**

   b. **What is the conclusion *q*?**

   c. **If both *p* and *q* are true, what does that mean? What is the truth value of the conditional statement if both *p* and *q* are true?**

   d. **If *p* is true and *q* is false, what does that mean? What is the truth value of the conditional statement if *p* is true and *q* is false?**

   e. **If *p* is false and *q* is true, what does that mean? What is the truth value of the conditional statement if *p* is false and *q* is true?**

   f. **If both *p* and *q* are false, what does that mean? What is the truth value of the conditional statement if both *p* and *q* are false?**

g. Summarize your answers to parts (a) through (f) by completing a truth table for the conditional statement.

p	q	$p \rightarrow q$

7. Mr. David wrote the statement shown on the board.

If $\overline{AC} \cong \overline{BC}$, then point C is the midpoint of $\overline{AB}$.

He asked his students to discuss the truth of this conditional statement.

Susan said she believed the statement to be true in all situations. Marcus disagreed with Susan and said that the statement was not true all of the time.

What is Marcus thinking and who is correct?

ACTIVITY
1.3 Postulates and Theorems

Greek mathematician Euclid is sometimes referred to as the Father of Geometry.

A **postulate** is a statement that is taken to be true without proof. A theorem is a statement that can be demonstrated to be true by accepted mathematical operations and arguments.

The Elements is a book written by the Greek mathematician Euclid. He used a small number of undefined terms and postulates to systematically prove many theorems. As a result, Euclid was able to develop a complete system we now know as **Euclidean geometry**.

Euclid's first five postulates are:

1. A straight line segment can be drawn joining any two points.
2. Any straight line segment can be extended indefinitely in a straight line.
3. Given any straight line segment, a circle can be drawn that has the segment as its radius and one endpoint as center.
4. All right angles are congruent.
5. If two lines are drawn that intersect a third line in such a way that the sum of the inner angles on one side is less than two right angles, then the two lines inevitably must intersect each other on that side if extended far enough. (This postulate is equivalent to what is known as the parallel postulate.)

Euclid used only the first four postulates to prove the first 28 propositions or theorems of *The Elements,* but was forced to use the fifth postulate, the parallel postulate, to prove the 29th theorem.

The Elements also includes five "common notions."

1. Things that equal the same thing also equal one another.
2. If equals are added to equals, then the wholes are equal.
3. If equals are subtracted from equals, then the remainders are equal.
4. Things that coincide with one another equal one another.
5. The whole is greater than the part.

You have already used the three undefined terms *point, line,* and *plane* to define related terms such as *line segment* and *angle*. Now consider these three fundamental postulates.

- The Linear Pair Postulate
- The Segment Addition Postulate
- The Angle Addition Postulate

You will use these postulates to make various conjectures. If you are able to prove your conjectures, then the conjectures will become theorems. These theorems can then be used to make even more conjectures, which may also become theorems. Mathematicians use this process to create new mathematical ideas.

The **Linear Pair Postulate** states: "If two angles form a linear pair, then the angles are supplementary."

1. Use the Linear Pair Postulate to complete each representation.

a. Sketch and label a linear pair.

b. Use your labeled sketch and the Linear Pair Postulate to write the hypothesis.

c. Use your labeled sketch and the Linear Pair Postulate to write the conclusion.

d. Use your conclusion and the definition of supplementary angles to write a statement about the measures of the angles in your figure.

The **Segment Addition Postulate** states: "If point *B* is on $\overline{AC}$ and between points *A* and *C*, then $AB + BC = AC$."

2. Use the Segment Addition Postulate to complete each representation.

a. Sketch and label collinear points *D*, *E*, and *F* with point *E* between points *D* and *F*.

b. Use your labeled sketch and the Segment Addition Postulate to write the hypothesis.

c. Use your labeled sketch and the Segment Addition Postulate to write the conclusion.

d. Write your conclusion using measure notation.

The **Angle Addition Postulate** states: "If point *D* lies in the interior of $\angle ABC$, then $m\angle ABD + m\angle DBC = m\angle ABC$."

3. Use the Angle Addition Postulate to complete each representation.

a. Sketch and label $\angle DEF$ with $\overrightarrow{EG}$ drawn in the interior of $\angle DEF$.

b. Use your labeled sketch and the Angle Addition Postulate to write the hypothesis.

c. Use your labeled sketch and the Angle Addition Postulate to write the conclusion.

NOTES

TALK the TALK

While You Were Away . . .

1. Write a short note to a friend explaining conditional statements, truth values, and truth tables. Include definitions of all terms and examples that are easy to understand.

Assignment

Write

Define each term in your own words.

1. counterexample
2. conditional statement
3. truth value
4. truth table

Remember

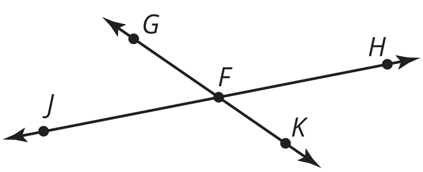
A conditional statement is a statement that can be written in the form "if p, then q." Written as $p \rightarrow q$, it is read "p implies q." The variable p represents the hypothesis and the variable q represents the conclusion.

Truth tables are used to organize truth values of conditional statements. A postulate is a statement that is accepted without proof. A theorem is a statement that can be proven.

Practice

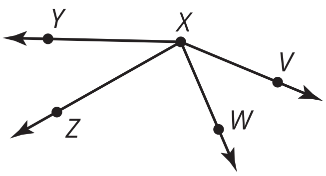
1. Write the postulate that confirms each statement.

   a. Angles GFH and KFH are supplementary angles.

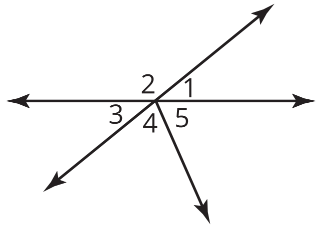


   b. $m\overline{RS} + m\overline{ST} = m\overline{RT}$

   c. $m\angle WXZ + m\angle ZXY = m\angle WXY$



   d. $m\angle 1 + m\angle 2 = 180°$



2. Complete a truth table for the conditional statements.

   a. If $\angle 1$ and $\angle 2$ are vertical angles, then $\angle 1 \cong \angle 2$.

   b. If $m\angle 1 = 90°$, then $\angle 1$ is a right angle.

   c. If $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, then $\overleftrightarrow{AB}$ does not intersect $\overleftrightarrow{CD}$.

   d. If a shape is a square, then the shape has four equal sides.

Stretch

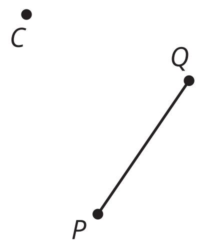
Let the variable p represent the statement "the figure is a square" and let the variable q represent the statement "the figure is a quadrilateral". Complete a truth table for the statements, then determine if conditional statements are commutative, that is $p \rightarrow q$ is the same as $q \rightarrow p$, by completing a truth table for $q \rightarrow p$.

Review

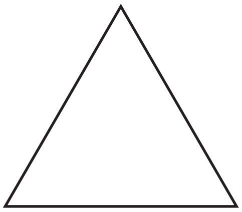
1. Complete each rotation given the function.

   a. $R_{X, -65}(\overline{AB})$

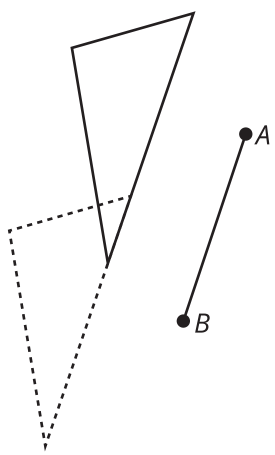
   b. $R_{C, 35}(\overline{PQ})$



2. Determine how many lines of symmetry the equilateral triangle has. Then draw the lines of symmetry.



3. Write a function to describe the translation.



4. Write the equation of a line that passes through the point $(-8, 2)$ and is parallel to the line $3x - 2y = 12$.
5. Write the equation of a line that passes through the point $(5, -7)$ and is perpendicular to the line $-2x + 6y = -4$.