

Geometry B Live Lesson Class

U4L6 – Composition of Isometries



Agenda



1. Review topics and problems from Unit 4, Lesson 6 – Composition of Isometries.

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
- 3.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

Reminders and To – Do's



Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's



Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

What to do

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:
<https://elizondo.youcanbook.me>

Send a WebMail

U4L6 – California Common Core State Standards



- HSG-CO.B.6: Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
- HSG-CO.A.5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
- HSG-CO.A.2: Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).

U4L6 – Objectives



- Find compositions of reflections, including glide reflections
- Classify isometries
- Find examples of transformations in the real world

- What is the result when a figure is reflected across two parallel lines?
Two intersecting lines?

U4L6 – Vocabulary Words



- glide reflection
- isometry

U4L6 – Concept Corner – Composition of Reflections



take note

Theorem 9-1

A translation or rotation is a composition of two reflections.

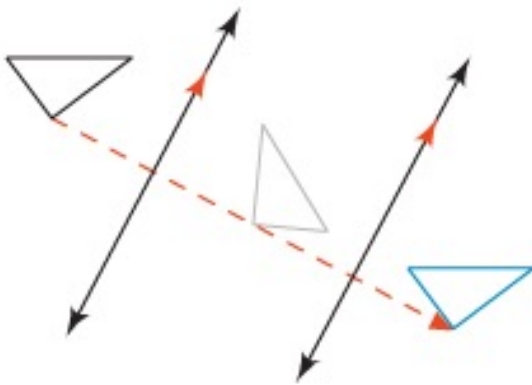
U4L6 – Concept Corner – Composition of Reflections



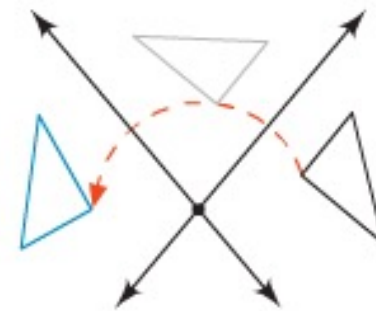
take note

Theorem 9-2

A composition of reflections across two parallel lines is a translation.



A composition of reflections across two intersecting lines is a rotation.



U4L6 – Key Words



- A **glide reflection** is the composition of a translation (a glide) and a reflection across a line parallel to the direction of translation.

U4L6 – Concept Corner – Isometry Classification Theorem



take note

Theorem 9-4 Isometry Classification Theorem

There are only four isometries.

Translation



Rotation



Orientations are the same.

Reflection



Orientations are opposite.

Glide Reflection



U4L6 – Practice Problems – Glide Reflection



- Find the glide reflection image for the given translation and reflection line.

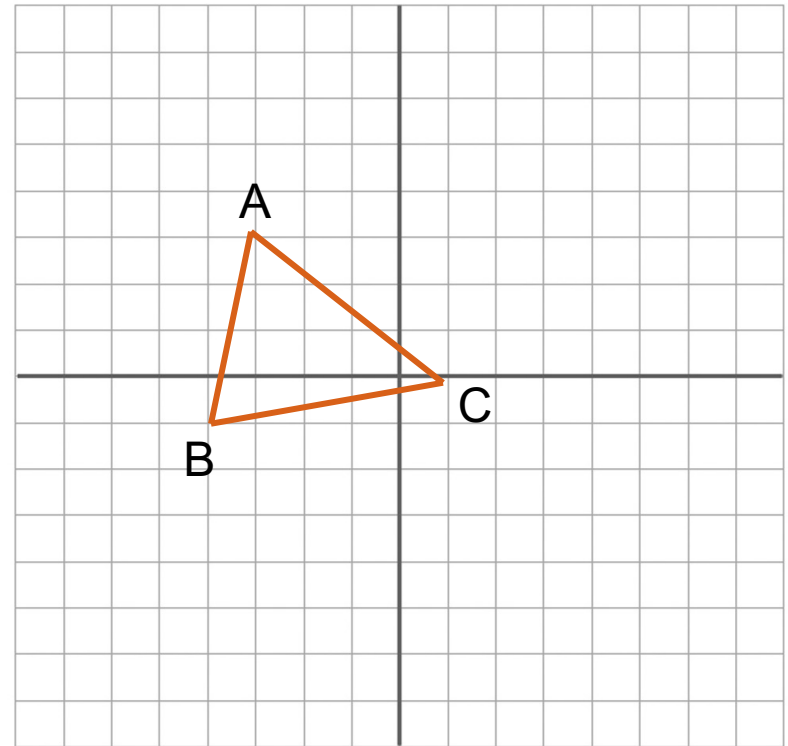
$$(x, y) \rightarrow (x + 2, y + 2); y = x$$

Orange

A (-3, 3)

B (-4, -1)

C (1, 0)



U4L6 – Practice Problems – Glide Reflection



- Find the glide reflection image for the given translation and reflection line.

$$(x, y) \rightarrow (x + 2, y + 2); y = x$$

Orange

Red

A (-3, 3)

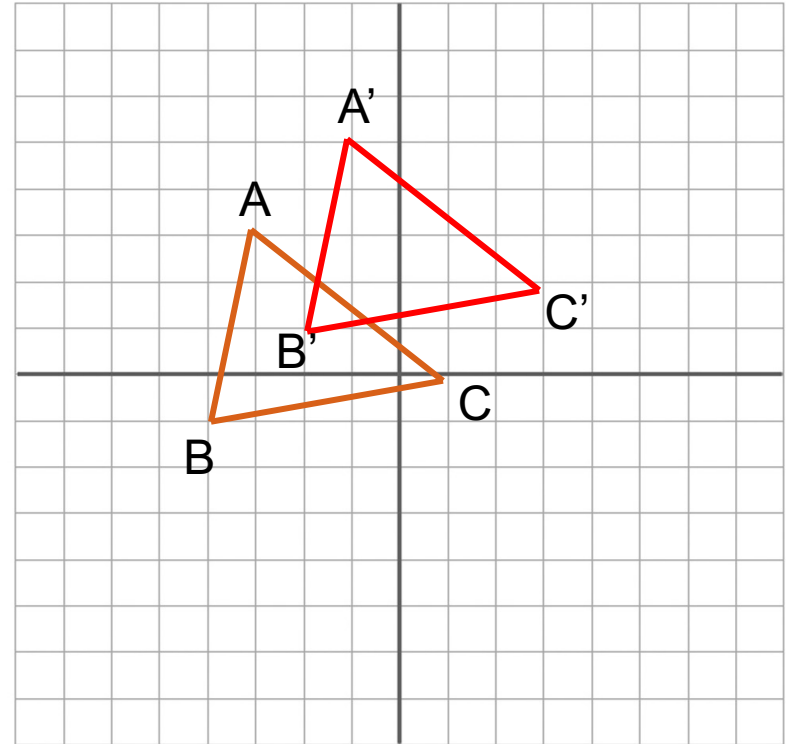
A'(-1, 5)

B (-4, -1)

B'(-2, 1)

C (1, 0)

C'(3, 2)



U4L6 – Practice Problems – Glide Reflection



- Find the glide reflection image for the given translation and reflection line.

$$(x, y) \rightarrow (x + 2, y + 2); y = x$$

Orange

Red

Blue

A (-3, 3)

A'(-1, 5)

A''(5, -1)

B (-4, -1)

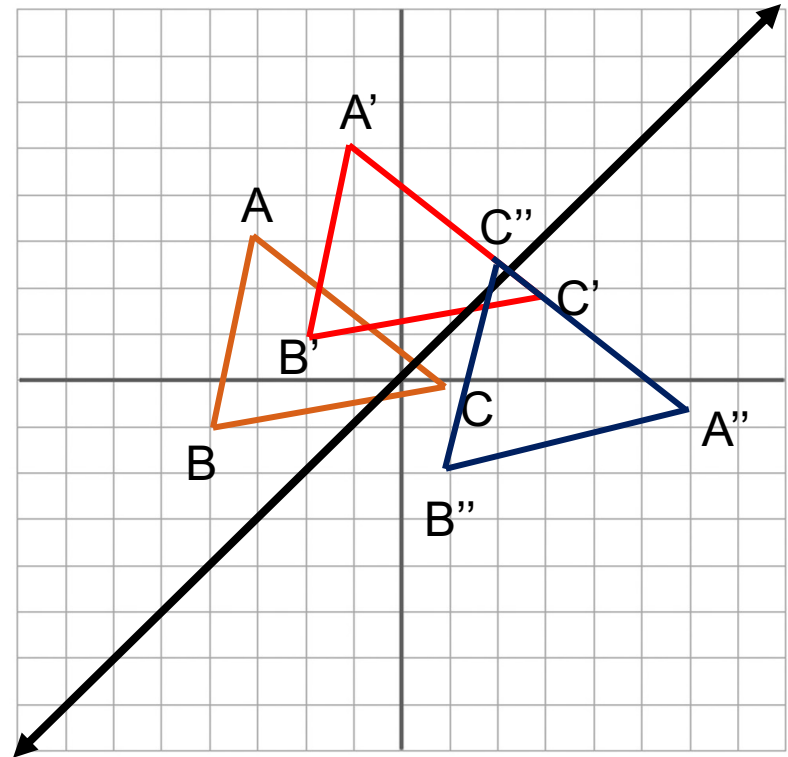
B'(-2, 1)

B'' (1, -2)

C (1, 0)

C'(3, 2)

C''(2, 3)



U4L6 – Practice Problems – Glide Reflection



- Find the glide reflection image for the given translation and reflection line.

$$(x, y) \rightarrow (x - 1, y + 4) ; x = -1$$

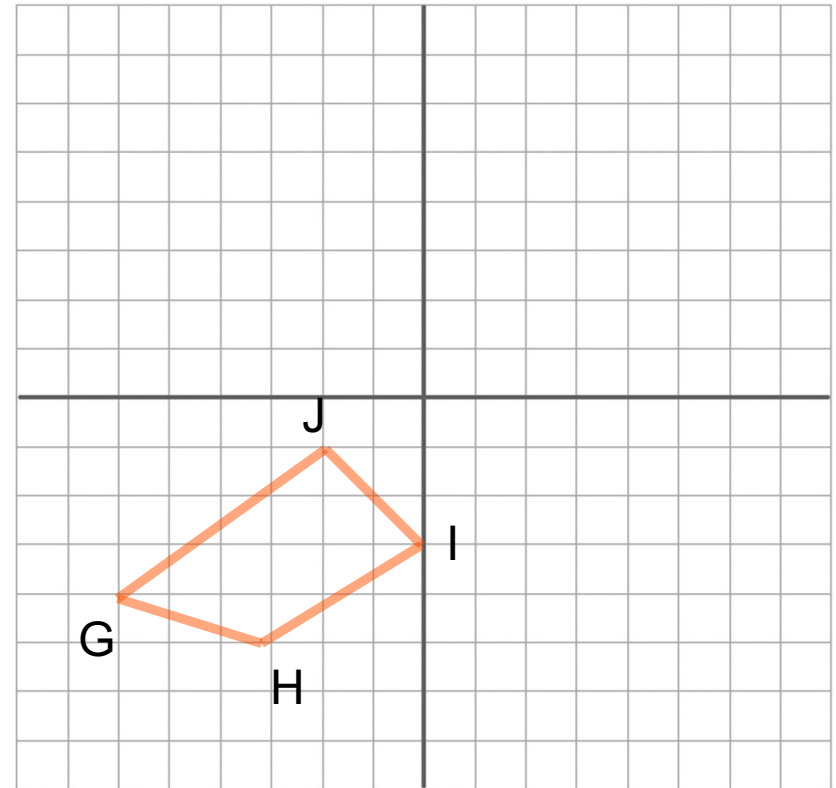
Orange

G (-6, -4)

H (-3, -5)

I (0, -3)

J (-2, -1)



U4L6 – Practice Problems – Glide Reflection



- Find the glide reflection image for the given translation and reflection line.

$$(x, y) \rightarrow (x - 1, y + 4) ; x = -1$$

Orange

Red

G (-6, -4)

G' (-7, 0)

H (-3, -5)

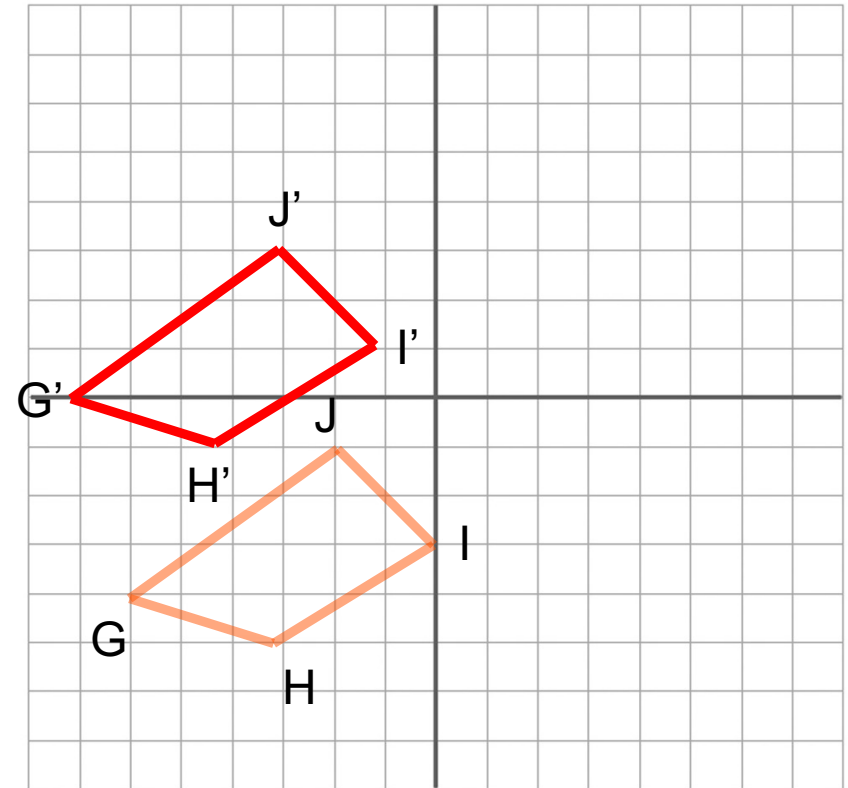
H' (-4, -1)

I (0, -3)

I' (-1, 1)

J (-2, -1)

J' (-3, 3)



U4L6 – Practice Problems – Glide Reflection

Reflection



- Find the glide reflection image for the given translation and reflection line.

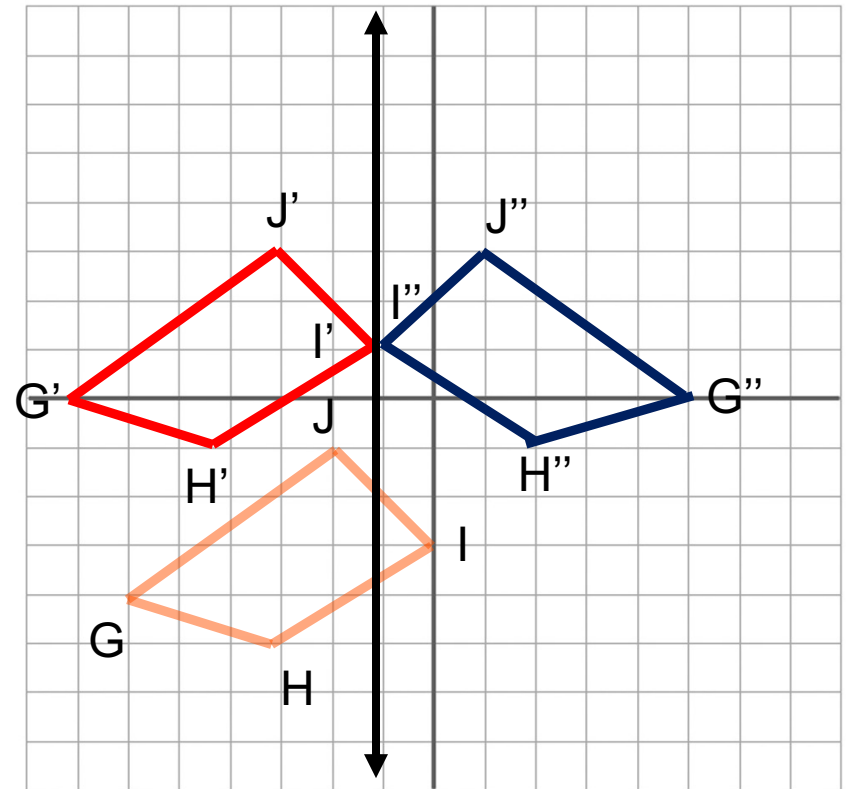
$$(x, y) \rightarrow (x - 1, y + 4) ; x = -1$$

Orange

Red

Blue

G (-6, -4)	G' (-7, 0)	G'' (5, 0)
H (-3, -5)	H' (-4, -1)	H'' (2, -1)
I (0, -3)	I' (-1, 1)	I'' (-1, 1)
J (-2, -1)	J' (-3, 3)	J'' (1, 3)



U4L6 – To Know for the Quiz



•Symmetry

- Identifying lines of symmetry
- Identifying rotational symmetry and angle of rotation
- Naming types of symmetry

•Dilation

- Finding scale factor
- Using scale factor

•Compositions of Isometries

- Glide reflection
- Types of isometries
- Theorem 9-2

U4L6 – Reflection



What is the result when a figure is reflected across two parallel lines? Two intersecting lines?

When a figure is reflected across two parallel lines, the result is a translation.

When it is reflected across two intersecting lines, the result is a rotation.

Questions?



- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <https://elizondo.youcanbook.me>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.