

Geometry B Live Lesson Class

U4L1 – Translations (Ch 9-1 in textbook)



Agenda



1. Review topics and problems from Unit 4, Lesson 1 – Translations.

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

U4L1 – California Common Core State Standards



- HSG-CO.A.4: Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- 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.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).
- 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.

U4L1 – Objectives



- Identify isometries
- Find translation images of figures

U4L1 – Vocabulary Words



- composition of transformations
- image
- isometry
- preimage
- transformation
- translation

U4L1 – Transformation



A **transformation** of a geometric figure is a change in the position, shape, or size of the figure.

The original figure is the **preimage**.

The resulting figure is the **image**.



The domino flips.



The domino slides.



The domino turns.

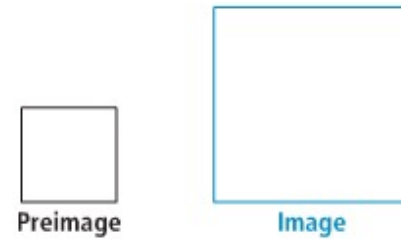
U4L1 – Isometry



An **isometry** is a transformation in which the preimage and image are congruent.

What are examples of transformations that are isometries?

Translations, reflections, and rotation

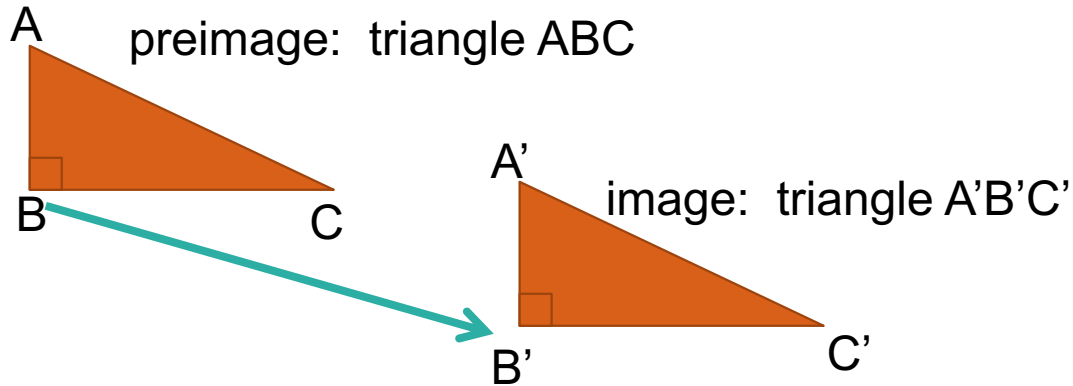


Not an isometry

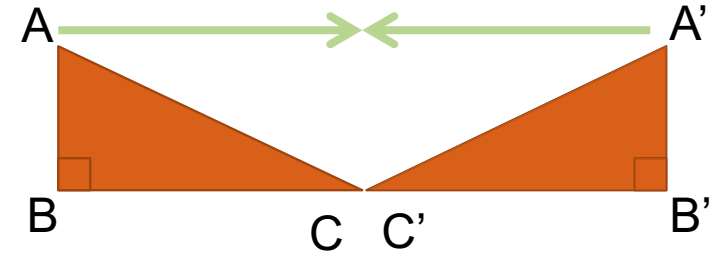


An isometry

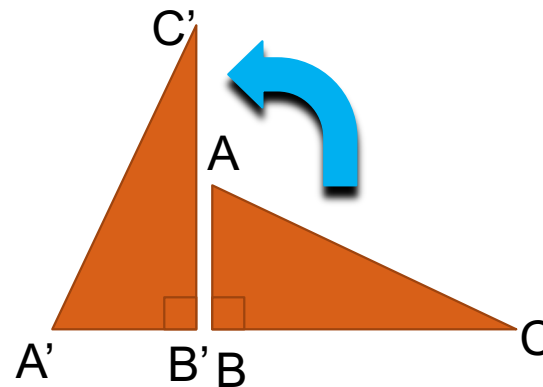
U4L1 – Isometry



Translation (slide)



Reflection (flip)



Rotation (turn)

Rotations are made in a **counter-clockwise** direction!!

U4L1 – Composition of a Transformation



A **composition of a transformation** is a combination of two or more transformations.

U4L1 – Concept Corner - Translation

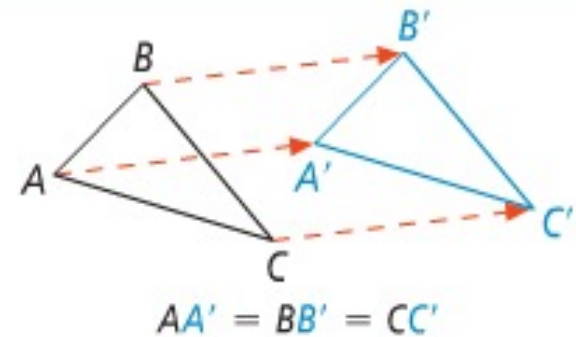


take note

Key Concept Translation

A **translation** is a transformation that maps all points of a figure the same distance in the same direction.

A translation is an isometry.



$$(x, y) \rightarrow (x + h, y + k)$$

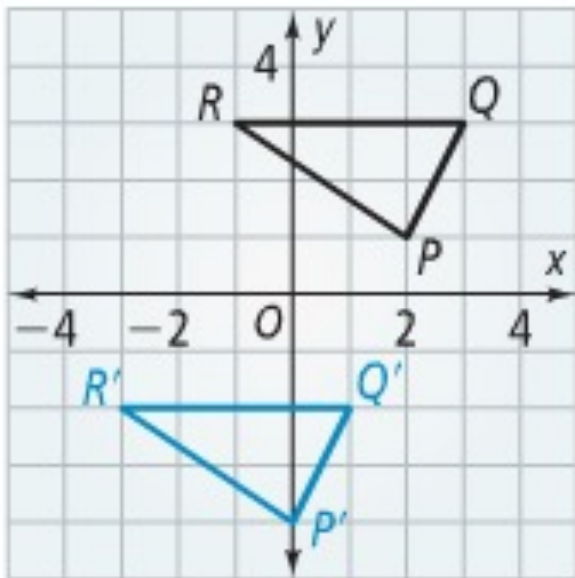
'h' is a horizontal change (left/right)

'k' is a vertical change (up/down)

U4L1 – Practice Problems - Translation



What is the rule that describes the translation $PQR \rightarrow P'Q'R'$?



$$R(-1, 3) \rightarrow R'(-3, -2)$$

$$x: -1 + x = -3 \quad y: 3 + y = -2$$

$$x: x = -2 \quad y: y = -5$$

$$(x, y) \rightarrow (x - 2, y - 5)$$

$$Q(3, 3) \rightarrow Q'(1, -2)$$

$$P(2, 1) \rightarrow P'(0, -4)$$

U4L1 – Practice Problems - Translation



$\triangle MUG$ has coordinates $M(2, -4)$, $U(6, 6)$, and $G(7, 2)$. A translation maps point M to $M'(-3, 6)$. What are the coordinates of U' and G' for this translation?

$$M(2, -4) \rightarrow M'(-3, 6)$$

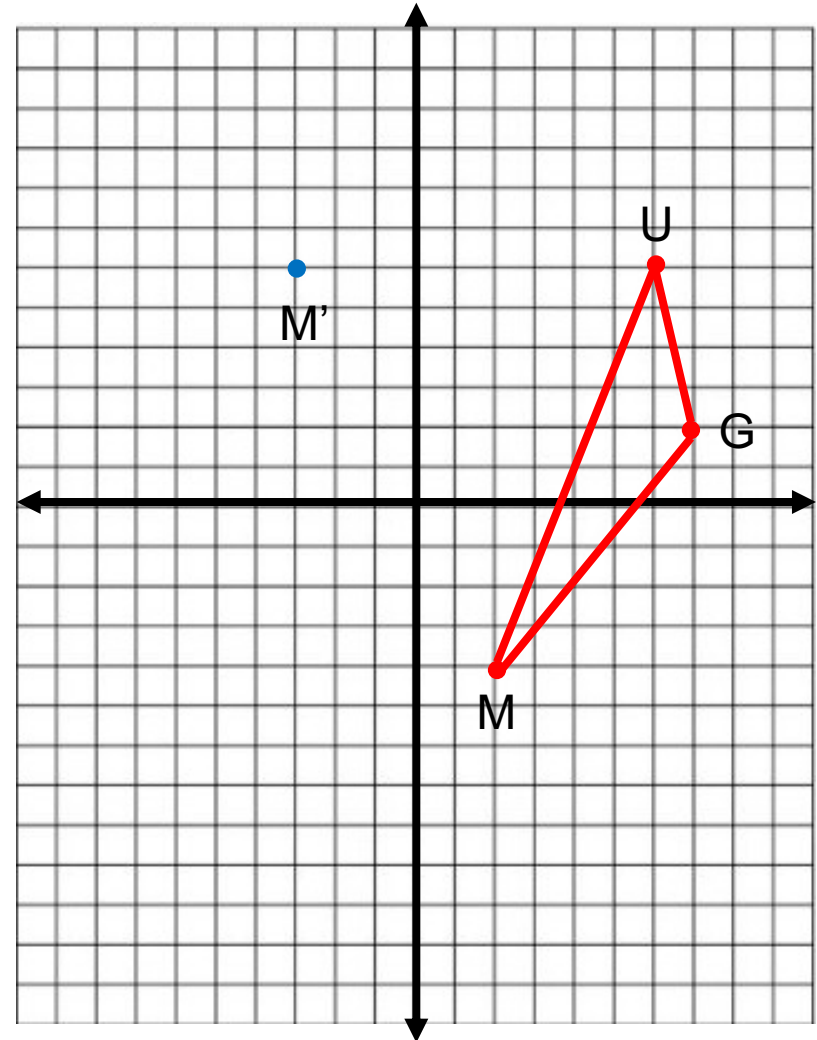
$$x: 2 + x = -3 \quad y: -4 + y = 6$$

$$x: x = -5 \quad y: y = 10$$

$$(x, y) \rightarrow (x - 5, y + 10)$$

$$U(6, 6) \rightarrow U'(1, 16)$$

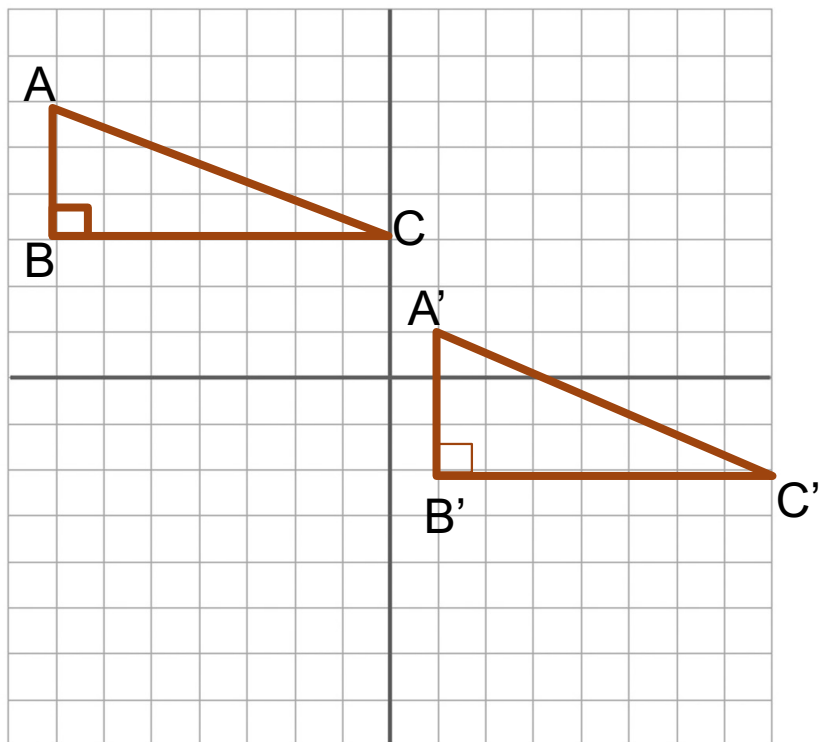
$$G(7, 2) \rightarrow G'(2, 12)$$



U4L1 – Practice Problems - Translation



What is the rule that describes the translation $ABC \rightarrow A'B'C'$?



$$A(-7, 6) \rightarrow A'(1, 1)$$

$$x: -7 + x = 1 \quad y: 6 + y = 1$$

$$x: x = 8 \quad y: y = -5$$

$$(x, y) \rightarrow (x + 8, y - 5)$$

$$B(-7, 3) \rightarrow B'(1, -2)$$

$$C(0, 3) \rightarrow C'(8, -2)$$

U4L1 – Practice Problems – Composition of Translations



Find a translation that has the same effect as the composition of translations.

$$(x, y) \rightarrow (x + 2, y + 5) \text{ followed by } (x, y) \rightarrow (x - 4, y + 9)$$

Add the x movements together and the y movements together.

$$2 + (-4) = -2, 5 + 9 = 14$$

$$(x, y) \rightarrow (x - 2, y + 14)$$

U4L1 – Reflection



What is an isometry?

An isometry is a transformation in which the preimage and image are congruent.

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.