

Mathematical Context

Mathematical Goals for the Lesson (from T-1 of Lesson Plan):

The *Representing and COmbining Transformations* lesson is designed to assess how well students are able to:

- Recognize and visualize transformations of 2D shapes
- Translate, reflect and rotate shapes, and combine these transformations

Discussion Questions to Develop the Big Mathematical Picture ¹

1. What big mathematical relationships, patterns, or principles do we want students to understand in this lesson?
2. What is one (or more) key mathematical understanding(s) that this lesson builds upon? What is one (or more) key mathematical understanding(s) that this lesson builds towards? What connects those understandings?
3. How might different representations or solution strategies within the lesson connect to each other in order to deepen our students' mathematical understandings?

Directions for the Mathematical Activity:

Work in groups of two or three. You will receive cut-up copies of *Card Set A: Shapes* and *Card Set B: Words*, as well as *Transformations* on a transparency sheet.

When working together, take turns to:

1. Match two shapes with a word card.
2. Explain your matching to your partner(s).
3. They will then check your matching and challenge your explanation if they disagree.
4. If possible, use all of the shape cards and all of the word cards.

For the version of these instructions for students, see T-4

Discussion Questions Focusing on the Mathematical Activity

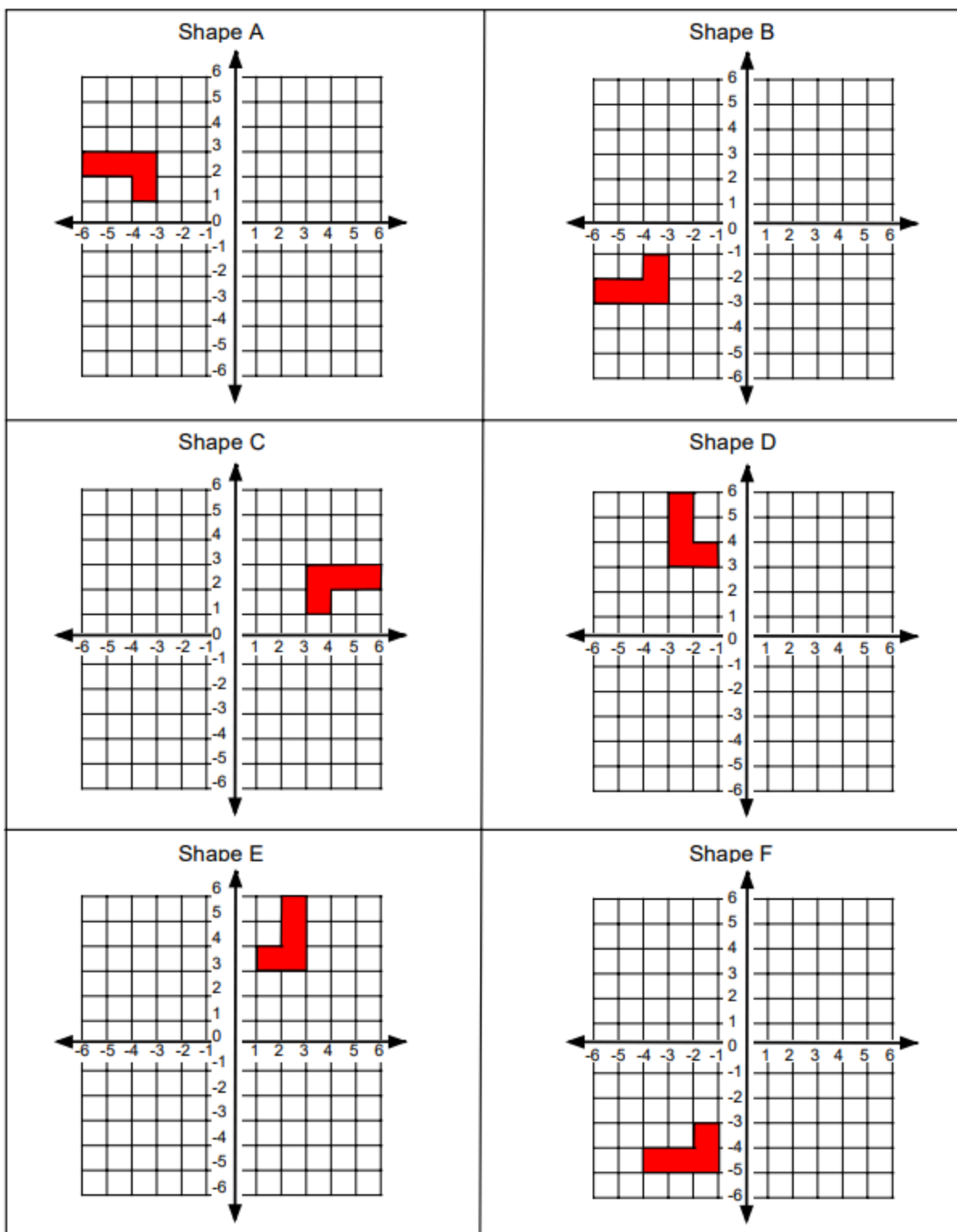
1. What are some different mathematical approaches for completing the task?
2. What is a big mathematical idea present in this lesson?
3. How do the tasks in the lesson provide opportunities for students to build on others thinking and recognize them as capable and able contributors towards important mathematical ideas?

¹ From: TRU Math Conversation Guide

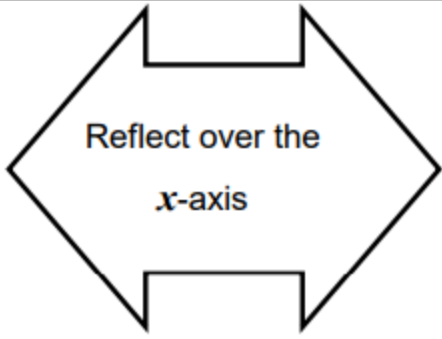
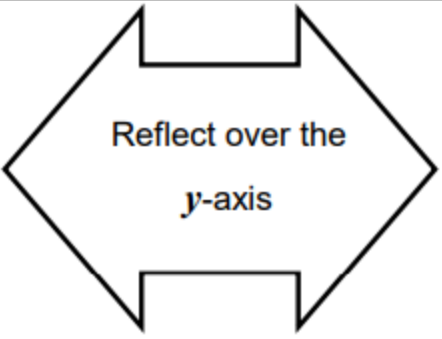
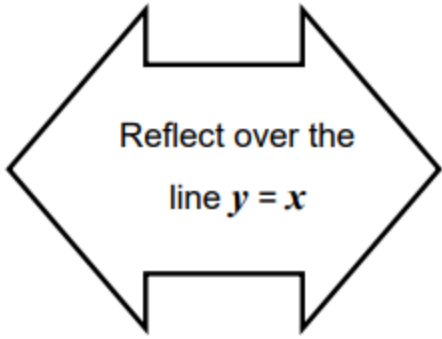
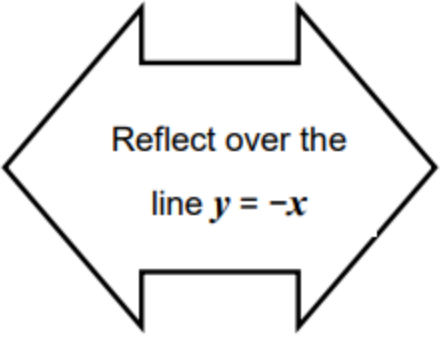
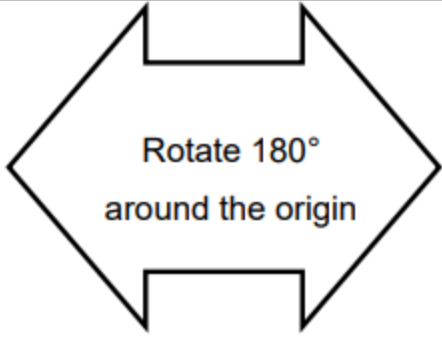
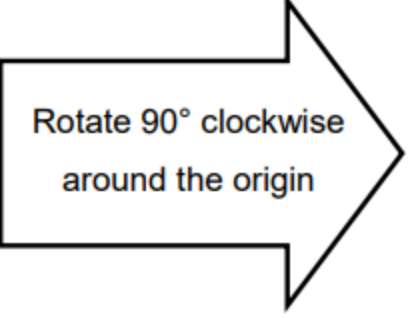
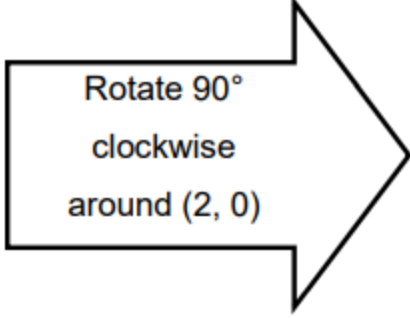
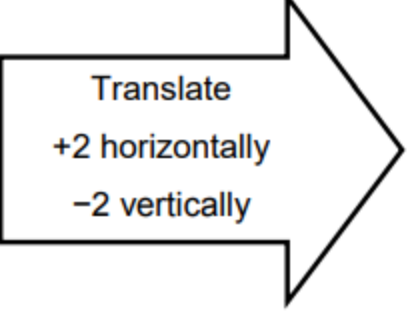
Mathematical Context Materials

Directions: Cut out the Card Sets on the next two pages to form the cards for the grouping activity. Give one set to each group of two or three. In addition, print *Transparency* on transparency paper and cut so that the L-shape can be moved on the graph paper.

Card Set A: Shapes



Card Set B: Words

 <p>Reflect over the x-axis</p>	 <p>Reflect over the y-axis</p>
 <p>Reflect over the line $y = x$</p>	 <p>Reflect over the line $y = -x$</p>
 <p>Rotate 180° around the origin</p>	 <p>Rotate 90° clockwise around the origin</p>
 <p>Rotate 90° clockwise around $(2, 0)$</p>	 <p>Translate $+2$ horizontally -2 vertically</p>

Transparency: Transformations

