THE GLOBAL LEADER IN MAGNETIC CONSTRUCTION TOYS

MAGFORMERS

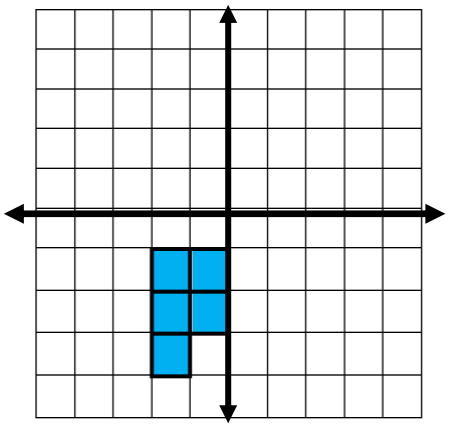
TRANSFORMATION GAME

PART 1: REVIEWING TRANSFORMATIONS

For each set of transformations, create the blue shape out of Magformers and place it on the corresponding spot on your Magformers grid. Perform the listed transformations on your Magformers shape in order listed. Draw the transformed Magformers shape in the corresponding place on the grid below.

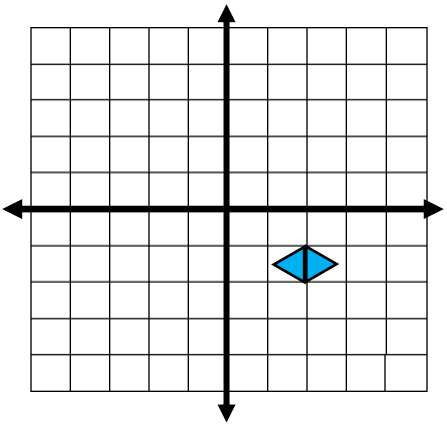
Transformations Set #A

1. Place your Magformers shape on your grid.
2. First translate the shape 2 units to the left.
3. Translate 1 unit up.
4. Rotate your Magformers shape 90° clockwise around the point (-2, 0).
5. Reflect your shape over the x-axis.
6. Sketch your transformed Magformers shape on the grid provided to the right.



Transformations Set #B

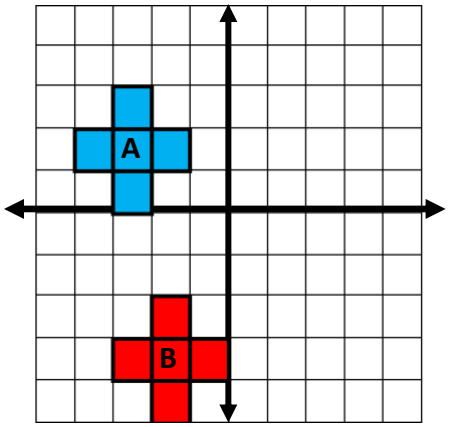
1. Place your Magformers shape on your grid.
2. Reflect the shape over the line y = 1.
3. Reflect the shape over the y-axis.
4. Translate the shape to the left 1 unit.
5. Sketch your transformed Magformers shape on the grid provided to the right.

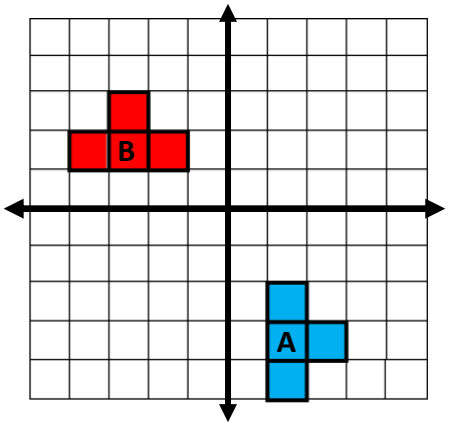


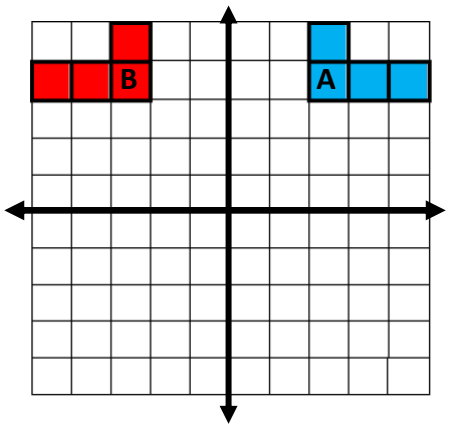
PART 2: THE TRANSFORMATION GAME

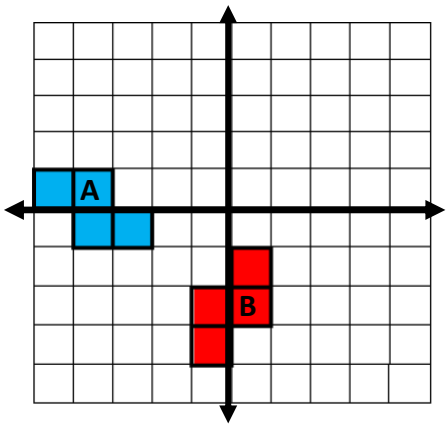
A two-dimensional figure is congruent to another figure if the second can be obtained from the first by a sequence of rotations, reflections, and translations.

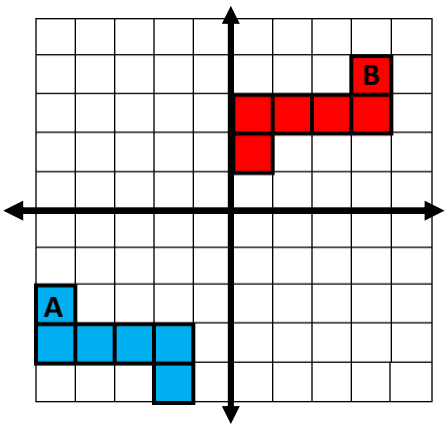
Directions for the Transformations Game
➢ For each round, your group will prove that the two shapes are congruent by finding a sequence of transformations that will carry Shape A onto the Shape B. ➢ After completing 6 rounds, find the sum of the number of moves your group used on each round. The team with the lowest score wins. ➢ Transformation game rules: ○ Translating the figure up 2 units left, right, up, or down counts as ONE move. ○ You may only translate in one direction per move. ○ You may translate no more than 2 units per move. ○ If rotating the figure, you must specify the number of degrees, direction (clockwise or counterclockwise), and the point of rotation. ○ If reflecting the figure, you must specify the line of reflection.

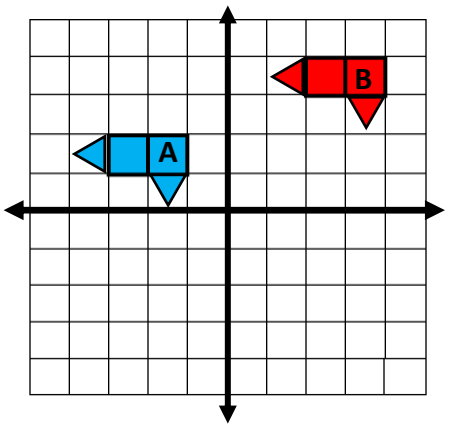
Transformations Game Round #1	
Number of move(s) used in this round:	
List of move(s) used:	

Transformations Game Round #2	
Number of move(s) used in this round:	
List of move(s) used:	

Transformations Game Round #3	
Number of move(s) used in this round:	
List of move(s) used:	

Transformations Game Round #4	
Number of move(s) used in this round:	
List of move(s) used:	

Transformations Game Round #5	
Number of move(s) used in this round:	
List of move(s) used:	

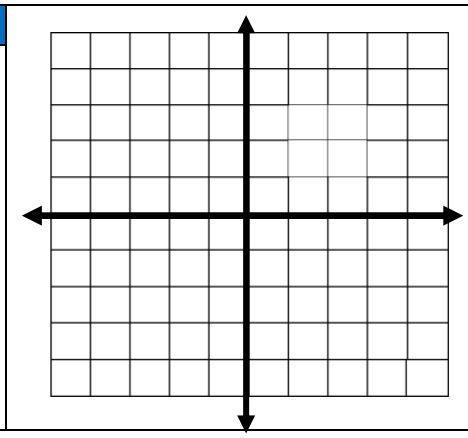
Transformations Game Round #6	
Number of move(s) used in this round:	
List of move(s) used:	

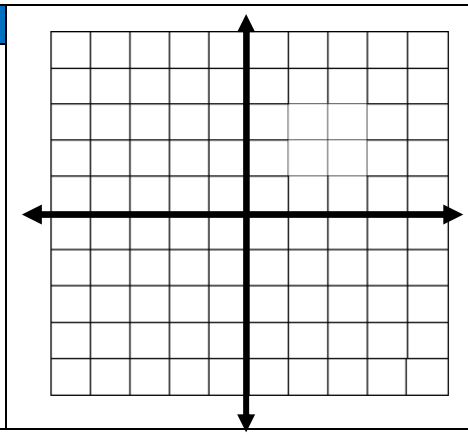
Total number of moves used in all 6 rounds:	

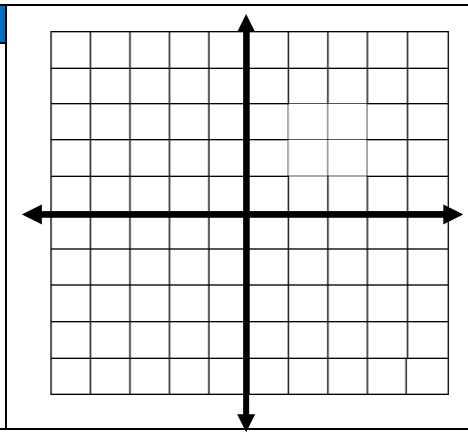
Which round of the game did you find least challenging? Which round did you find most challenging? Why do you think this was?

PART 3: CREATE YOUR OWN

Create three Transformation Games. Challenge a friend to complete them.

My Transformation Game #1	

My Transformation Game #2	

My Transformation Game #3	

PART 4: REFLECTION

1. Xavier creates a Transformation Game challenge that can be solved in 2 moves. He accidentally records the moves in the wrong order. Will switching the order of 2 moves make the outcome sometimes, always, or never different? Explain.

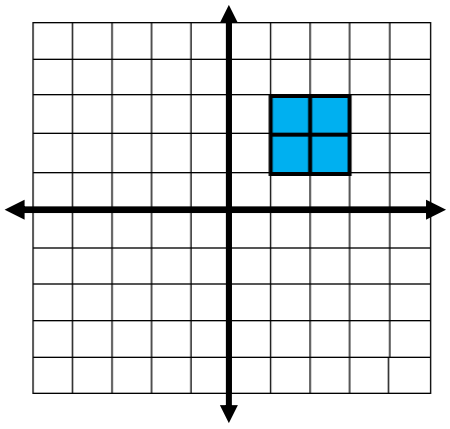
2. Felicity sets up a Transformation Game by placing two super-rectangle Magformers (3 unit x 1 unit piece) on the gameboard. After trying to solve her game, George claims that Felicity has created an impossible game. Could George be correct?

PART 5: HIRO'S GAME

Hiro has a new idea for a game. He creates and places a Magformers shape on the grid. The goal of the game is to think of as many single-move transformations as you can that will carry the shape onto itself. Rotation angles must be more than 0 degrees and less than 360 degrees. Play Hiro's game:

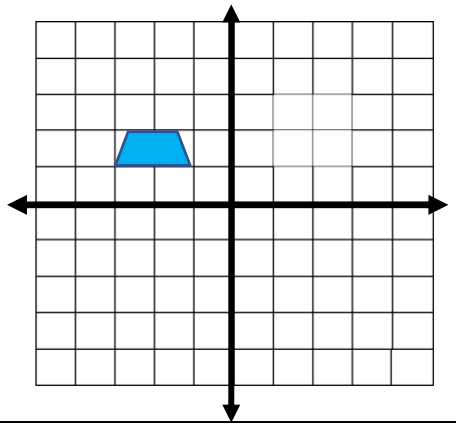
Hiro's Game #1: Square

List of single transformation moves possible:



Hiro's Game #2: Trapezoid

List of single transformation moves possible:



Create Your Own Hiro's Game