

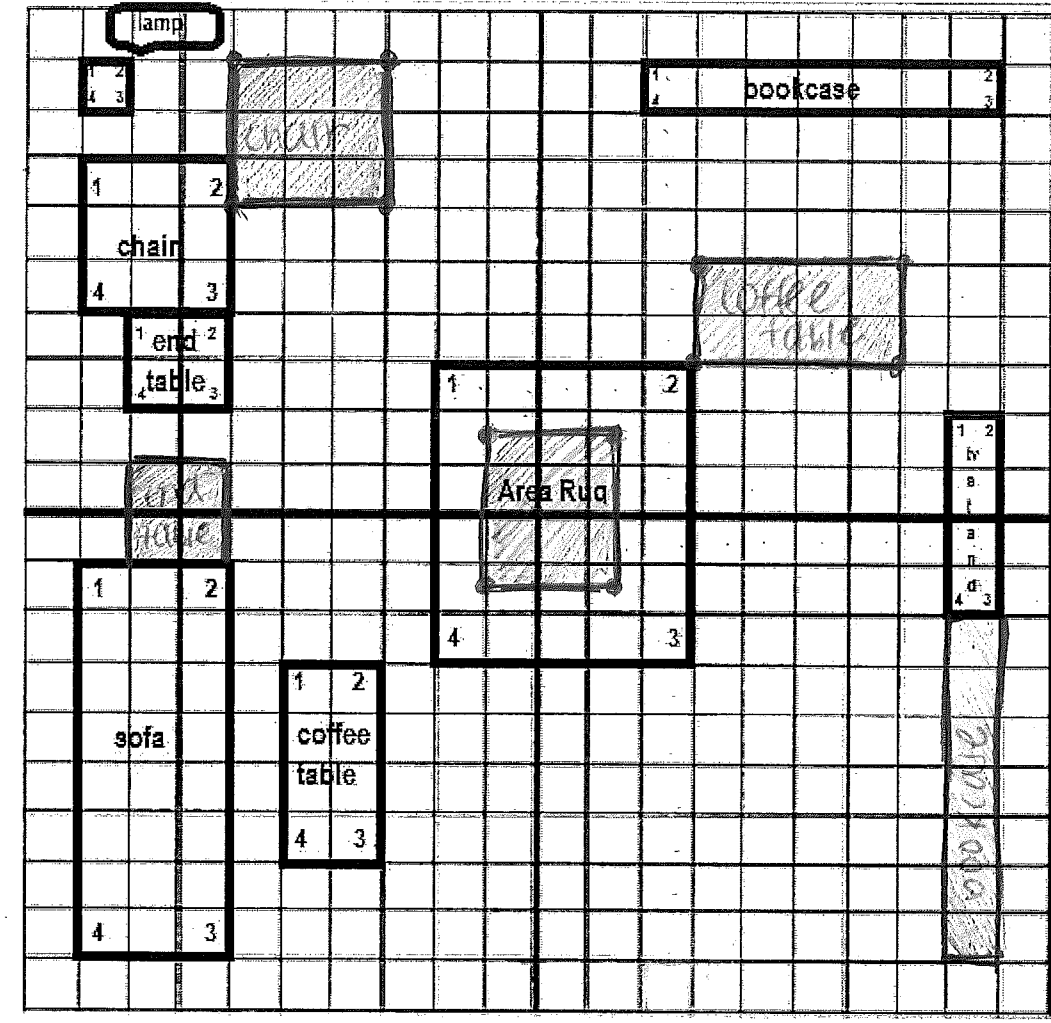
Name: KLY Per: _____ Date: _____

Geometry Unit 4 Task "Living Room Furniture"

Criterion B: Patterns and C: Communications

After moving into a new apartment, the Thompsons decided on the layout below for their living room. (The distance between gridlines is 1 foot.) Note the four corner points of each piece of furniture in the diagram below:

Living Room Furniture Layout (Before)



Piece of Furniture	Corner 1 Coordinates	Corner 2 Coordinates	Corner 3 Coordinates	Corner 4 Coordinates
Sofa	(-9,-1)	(-6,-1)	(6,-9)	(-9,-9)
Coffee Table	(-5,-3)	(-3,-3)	(-3,-7)	(-5,-7)
End table	(-8,4)	(-6,4)	(-6,2)	(-8,-2)
Chair	(-9,7)	(-6,7)	(-6,4)	(-9,4)
Lamp	(-9,9)	(-8,9)	(-8,8)	(-9,8)
Bookcase	(2,9)	(9,9)	(9,8)	(2,8)
Area Rug	(-2,3)	(3,3)	(3,-3)	(-2,-3)
Tv stand	(8,2)	(9,2)	(9,-2)	(8,-2)

Directions to Redecorate the Living Room!!

1. Translate the end table by the vector $\langle 0, -3 \rangle$. Graph on your Before Layout, label and shade.

Write the rule of the Transformation.

$$T_{\langle 0, -3 \rangle}$$

Describe the change in the coordinates.

subtract 3 from y-coord.

Write the coordinate change as a general rule.

$$(x, y) \rightarrow (x, y - 3)$$

2. Translate the chair by the vector $\langle 3, 2 \rangle$. Graph on your Before Layout, label and shade.

Write the rule of the Transformation.

$$T_{\langle 3, 2 \rangle}$$

Describe the change in the coordinates.

add 3 to x-coord., add 2 to y-coord.

Write the coordinate change as a general rule.

$$(x, y) \rightarrow (x + 3, y + 2)$$

3. Rotate the book case 90° clockwise. Graph on your Before Layout, label and shade.

Write the rule of the Transformation.

$$R_{270^\circ} \text{ or } R_{90^\circ} \text{ clockwise}$$

Describe the change in the coordinates.

switch and negate new y-coord.

Write the coordinate change as a general rule.

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

4. Reflect the coffee table over the line $y = -x$. Graph on your Before Layout, label and shade.

Write the rule of the Transformation.

$$r_{y = -x}$$

Describe the change in the coordinates.

switch and negate both

Write the coordinate change as a general rule.

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

5. Dilate the Area Rug by a factor of $\frac{1}{2}$. Graph on your Before Layout, label and shade.

Write the rule of the Transformation.

$$D_{\frac{1}{2}}$$

Describe the change in the coordinates.

multiply x & y coord. by $\frac{1}{2}$ (or \div by 2)

Write the coordinate change as a general rule.

$$(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$$