

# Transformations – Isometries

G.CO.A.2

Notes Section T.1

Name \_\_\_\_\_

An **ISOMETRIC TRANSFORMATION (RIGID MOTION)** is a transformation that

A **NON-ISOMETRIC TRANSFORMATION (NON-RIGID MOTION)** is a transformation *does*

preserves the distance and angles

Not preserves the distance and angles

between the pre-image and image

between the pre-image and image

Synonym for isometry CONGRUENT

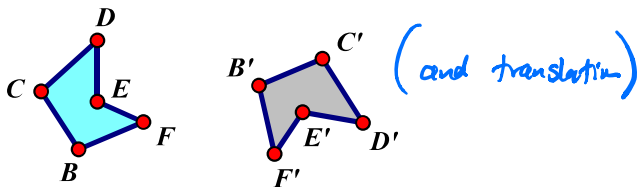
## Isometric Transformations

Rotations, Translations, & Reflections

## Non-Isometric Transformations

Dilations and Stretches

This is a ROTATION

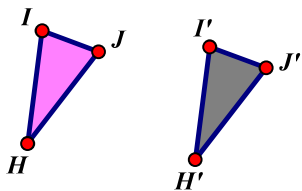


This is a Dilation which

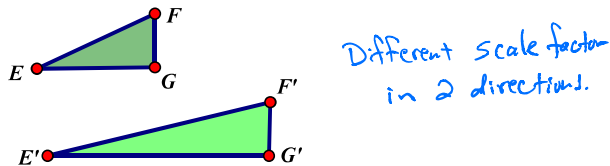
produces Similar figures.



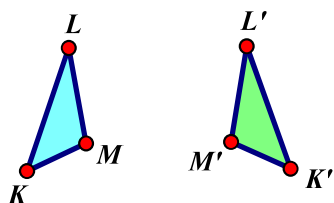
This is a Translation



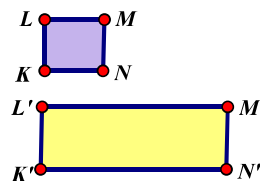
This is a Stretch



This is a Reflection



This is also a Stretch



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Notes Section T.1

Name \_\_\_\_\_

1. Circle which of the following are isometric transformations? (there may be more than 1 answer) And determine which transformation took place by writing reflection, translation, rotation, dilation, stretch or other under each image.

Pre-Image



Image A



Dilate

Image B



Stretch

Image C



Rotate

2. Circle which of the following are isometric transformations? (there may be more than 1 answer) And determine which transformation took place by writing reflection, translation, rotation, dilation, stretch or other under each image.

Pre-Image



Image A



Rotation

Image B



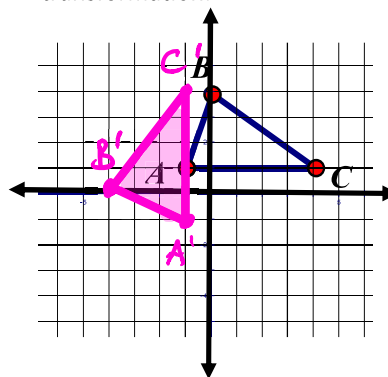
Reflection

Image C



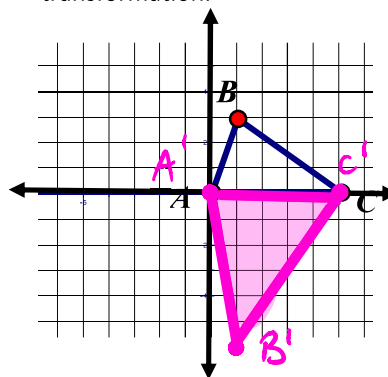
Stretch

3. Determine the coordinates of the image, plot the image and determine if it is an isometric transformation.



	Transformation
a) Pre-Image Points	<u>Coordinate Rule</u>
A (-1,1)	$(x,y) \rightarrow (-y, x)$
B (0,4)	<u>Image Points</u>
C (4,1)	A' (-1, -1)
Isometry? <b>Yes</b> or No	B' (-4, 0)
Transformation Type:	C' (-1, 4)
	<u>Rotation</u>

4. Determine the coordinates of the image, plot the image and determine if it is an isometric transformation.



	Transformation
a) Pre-Image Points	<u>Coordinate Rule</u>
A (0,0)	$(x,y) \rightarrow (x, -2y)$
B (1,3)	<u>Image Points</u>
C (5,0)	A' (0, 0)
Isometry? Yes or <b>No</b>	B' (1, -6)
Transformation Type:	C' (5, 0)
	<u>Stretch</u>