

NY5 COMMON CORE MATHEMATICS CURRICULUM Lesson 19 M1

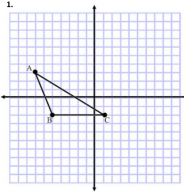
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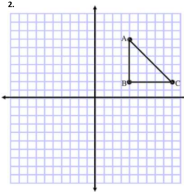
Lesson 19: Compositions of Transformations

Warm Up

Determine the coordinates of the image, plot the image, and determine the type of transformation.

Coordinate Rule	Pre-image Points	Image Points	Type of Transformation (Circle one)
1. $T_{5,7}$	A (-7, 3) B (-5, -2) C (1, -2)	A' (-2, 10) B' (0, 5) C' (6, 5)	Reflection Dilation Translation Dilation
2. R_{90}	A (4, 7) B (4, 2) C (9, 2)	A' (-7, 4) B' (-2, 4) C' (-2, 9)	Reflection Rotation Translation Dilation

1. 

2. 

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Lesson 19: Compositions of Transformations

Learning Target: I can draw an image by performing compositions of transformations. <http://geo-el.com>

Notation Review

Translations: _____ Reflections: _____ Rotations: _____

The combination of two transformations is called a Composition.

Read from Right to Left

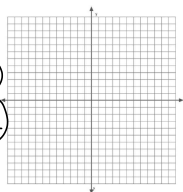
Notation: $r_{y-axis} \circ T_{5,7}$ is read: "a reflection in the y-axis followed by a reflection in the x-axis".

So you do the transformation right to left

Example 1: Given $\triangle ABC$: A(1, 2), B(5, 5), and C(5, 2). Find $r_{y-axis} \circ r_{x-axis}(\triangle ABC)$ and label the image triangle appropriately. Don't forget to state all coordinates!

A' (-1, 2) B' (-5, 2) C' (-5, 2)

A'' (-1, -2) B'' (-5, -2) C'' (-5, -2)



The composition of a line reflection in the y-axis followed by a reflection in the x-axis is equivalent to a single transformation. Which one? R_{180}

A(5, 2)

$R_{90^\circ} \circ r_{y=x}$

A(5, 2) $\xrightarrow{y=x}$ A'(2, 5) $\xrightarrow{R_{90^\circ}}$ A''(-5, 2)

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$r_{x-axis} \circ r_{y-axis}$ start here

A(1, 2) $\xrightarrow{y-axis}$ A'(-1, 2) $\xrightarrow{x-axis}$ A''(-1, -2)

B(5, 5) \rightarrow B'(-5, 5) \rightarrow B''(-5, -5)

C(5, 2) \rightarrow C'(-5, 2) \rightarrow C''(-5, -2)

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K(3, 6)

$T_{-1, 4} \circ R_{180^\circ}$

K(3, 6) $\xrightarrow{R_{180}}$ K'(-3, -6) $\xrightarrow{T_{-1, 4}}$ K''(-4, -2)

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