

Geometry

Chapter 9

Section 9-7

Concept

A [similarity transformation](#) is a transformation (or composition of transformations) in which the image is *similar* to the preimage.

take note

Key Concept Similar Figures

Two figures are **similar** if and only if there is a similarity transformation that maps one figure onto the other.

Classify the following rules:

Congruence Transformations

$$r_{(180)}(x,y)$$

$$R_{y=x}(BCDE)$$

$$(T_{\langle 0,2 \rangle} \circ R_{y\text{-axis}})(P)$$

Similarity Transformations

$$D_7(x,y)$$

$$(r_{(90)} \circ D_{11})(JK)$$

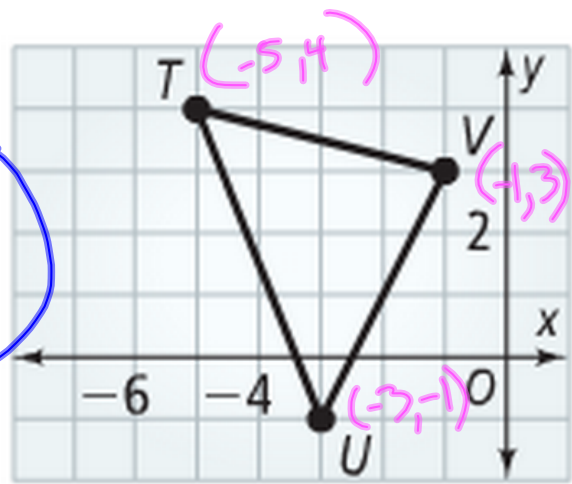
Find the coordinates of the image of the following:

$$(r_{(180,0)} \circ D_8)(TUV)$$

$$\begin{matrix} T'(-40,32) & T''(40,-32) \\ U'(-24,-8) & U''(24,8) \\ V'(-8,24) & V''(8,-24) \end{matrix}$$

$$(D_3 \circ R_{y\text{-axis}})(TUV)$$

$$\begin{matrix} T'(5,4) & T''(15,12) \\ U'(3,-1) & U''(9,-3) \\ V'(1,3) & V''(3,9) \end{matrix}$$



For the following transformation rules use coordinates J(4, 8), K(3, -2), L(-6, 1) and M(0,0).

$(T_{\langle -1, 4 \rangle} \circ D_2)(JKLM)$

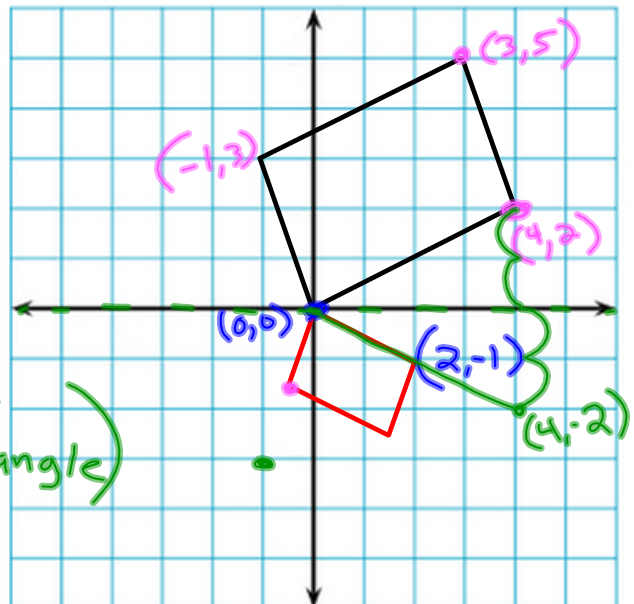
$J'(8, 16)$ $J''(7, 20)$
 $K'(6, -4)$ $K''(5, 0)$
 $L'(-12, 2)$ $L''(-13, 6)$
 $M'(0, 0)$ $M''(-1, 4)$

$(D_4 \circ R_{y=x})(JKLM)$

$J'(8, 4)$ $J''(32, 16)$
 $K'(-2, 3)$ $K''(-8, 12)$
 $L'(1, -6)$ $L''(4, -24)$
 $M'(0, 0)$ $M''(0, 0)$

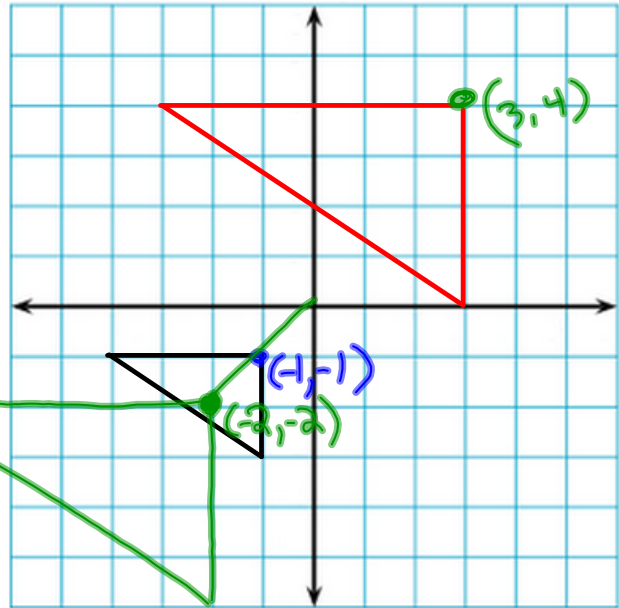
The red figure is the image of a similarity transformation. Identify the transformation:

$(D_{1/2} \circ R_{x\text{-axis}})$ (Black Rectangle)



The red figure is the image of a similarity transformation. Identify the transformation:

$(T_{5,6} \circ D_2)$ (black \triangle)



Homework

Pages 598 - 600

8 - 10 all, 17, 19 - 22 all, 27