Student Journal Pg 109

Name_____ Date_____

4.4 Notetaking with Vocabulary

For use after Lesson 4.4

In your own words, write the meaning of each vocabulary term.

congruent figures Two geometric figures are congruent if and only if there is a rigid motion or combination of rigid motions that maps one onto the other.

congruence transformation a rigid motion because the preimage and the image are congruent.

Theorems

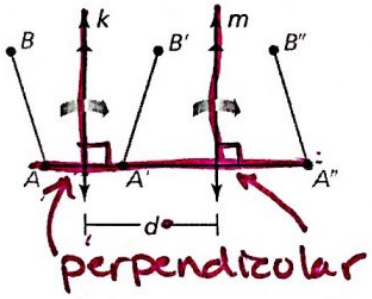
Theorem 4.2 Reflections in Parallel Lines Theorem

If lines k and m are parallel, then a reflection in line k followed by a reflection in line m is the same as a translation.

If A'' is the image of A, then

1. AA'' is perpendicular to k and m, and
2. $AA'' = 2d$, where d is the distance between k and m.

Proof Ex. 31. p. 206



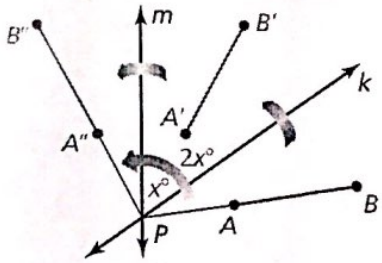
Notes: two reflections over parallel lines is the same as a translation.

Theorem 4.3 Reflections in Intersecting Lines Theorem

If lines k and m intersect at point P, then a reflection in line k followed by a reflection in line m is the same as a rotation about point P.

The angle of rotation is $2x°$, where $x°$ is the measure of the acute or right angle formed by lines k and m.

Proof Ex. 31. p. 206

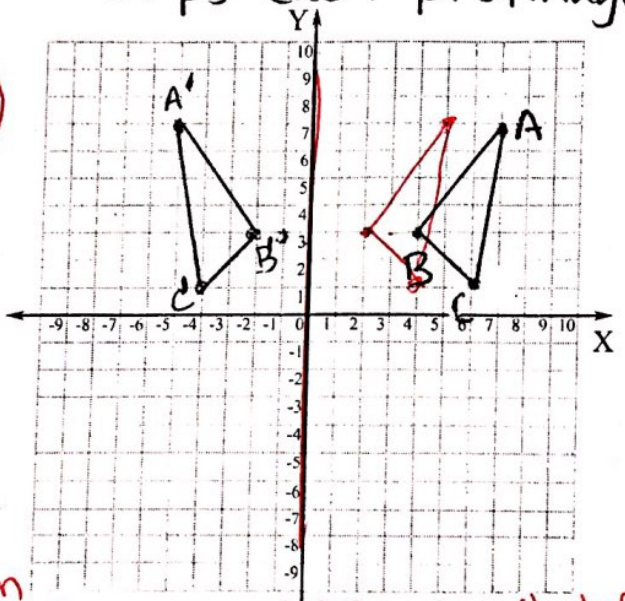


Notes: two reflections over intersecting lines is the same as a rotation.

4.4 Congruence and Transformations

Describe a congruence transformation that maps each preimage onto the image

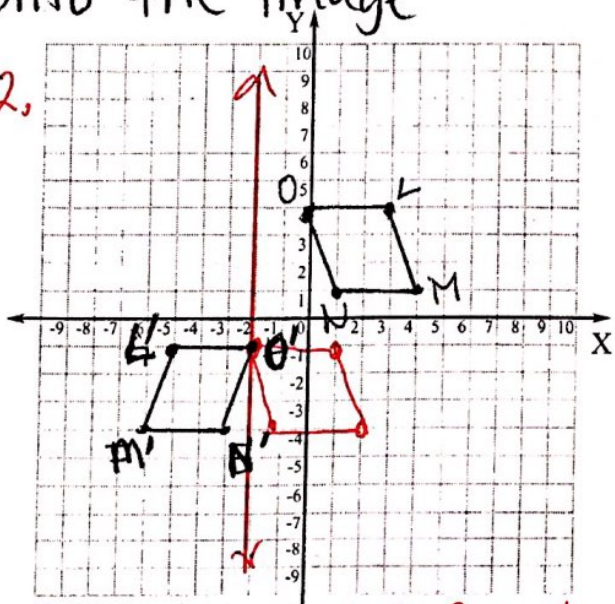
1)



option 1 Translate ΔABC 2 units left then reflect in the y axis.

option 2 Reflect ΔABC in the line x=1

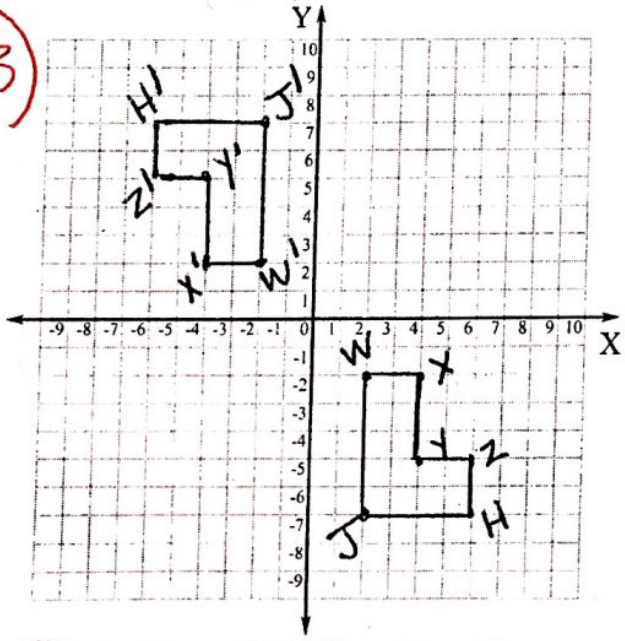
2.



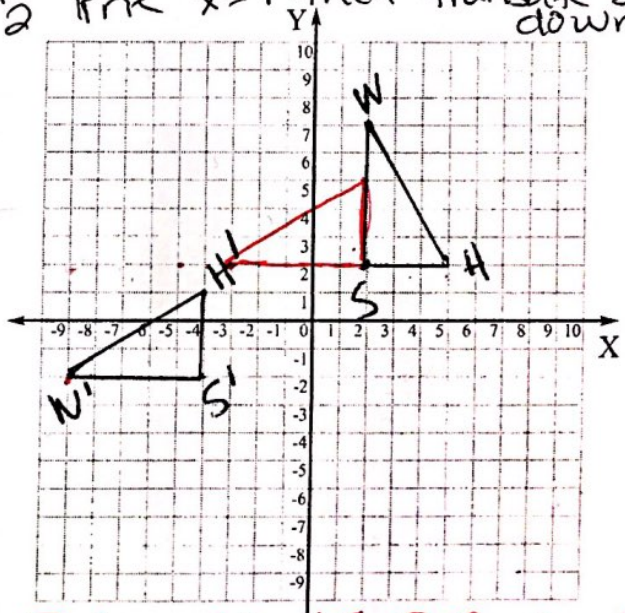
Translate LMNO 2 units left and 5 down then Reflect in the line x=-2

option 2 Reflect LMNO over the line x=-1 then translate 5 units down

3)



Rotate 180° about the origin



Rotate ΔWHS 90° about point S. Translate 6 units left then down 4 units.

option 2 Rotate ΔWHS 90° about the origin. Then translate ΔWHS two units left and 4 units down.