

11.2 online hw due today!

11.3 online hw due Monday!

Week #7 Packet due Wednesday

(no school Tuesday - PTC)

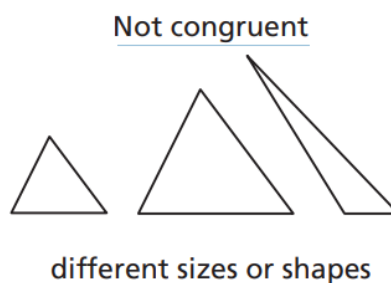
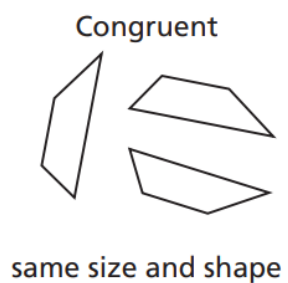
Ch 10 Test Retakes due Wed 1/15

Essential Question

What happens to congruent figures when they go through multiple rigid motion transformations?

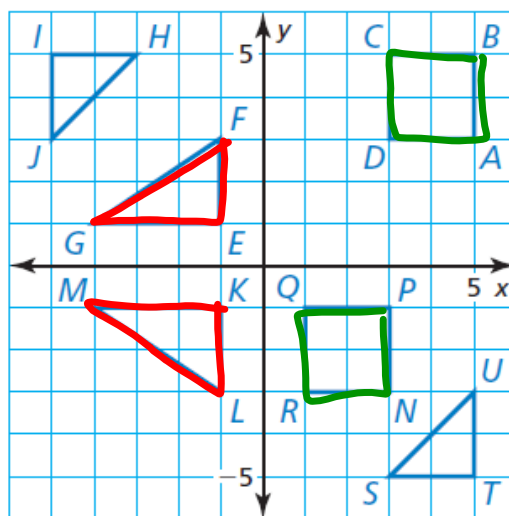
Identifying Congruent Figures

Two geometric figures are **congruent figures** if and only if there is a rigid motion or a composition of rigid motions that maps one of the figures onto the other. Congruent figures have the same size and shape.



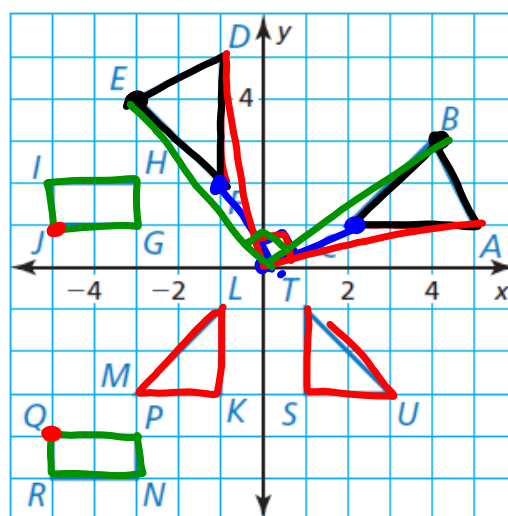
Identify any congruent figures in the coordinate plane. Explain.

$(-5, 5)$
 $(5, -5)$



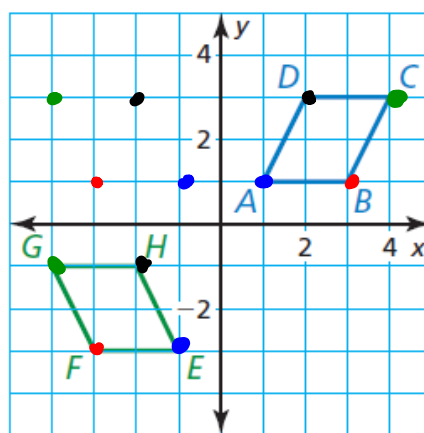
Identify any congruent figures in the coordinate plane. Explain.

$$(x, y) \rightarrow (x, y - 6)$$

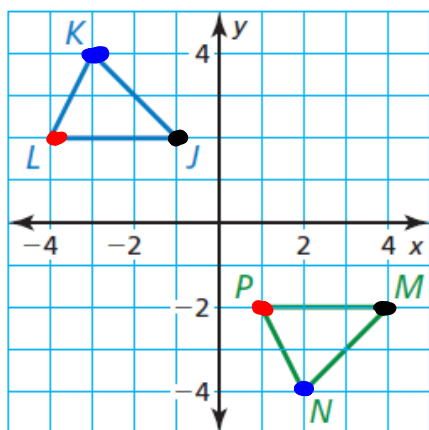


Describe a congruence transformation that maps $\square ABCD$ to $\square EFGH$.

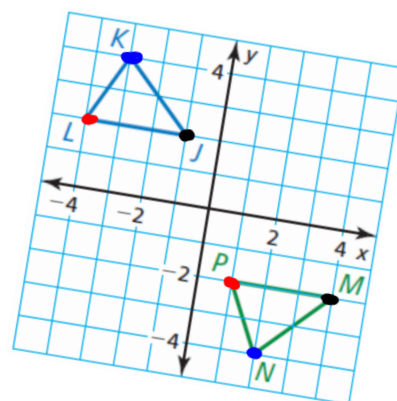
reflect over y
 $(x, y) \rightarrow (x, y - 4)$



Describe a congruence transformation that maps $\triangle JKL$ to $\triangle MNP$.



reflect over x
 $(x, y) \rightarrow (x+5, y)$



Theorem

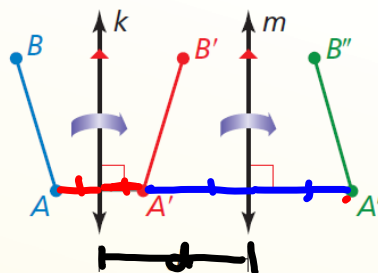
Reflections in Parallel Lines Theorem

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

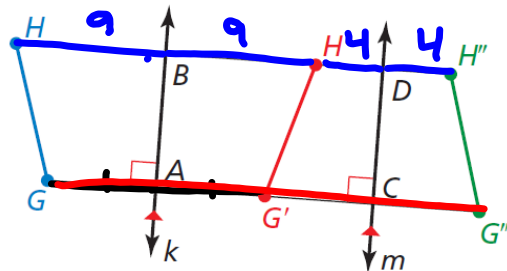
1. $\overline{AA''}$ is perpendicular to k and m , and
2. $AA'' = \underline{2d}$ where d is the distance between k and m .

Proof Ex. 31, p. 576



In the diagram, a reflection in line k maps \overline{GH} to $\overline{G'H'}$. A reflection in line m maps $\overline{G'H'}$ to $\overline{G''H''}$.

$HB = 9$ and $DH'' = 4$.



a. Name any segments congruent to each segment: \overline{GH} , \overline{HB} , and \overline{GA} .

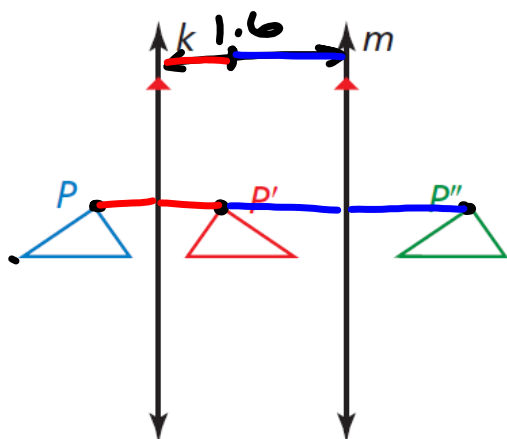
\overline{GH} , $\overline{G''H''}$, $\overline{G'H'}$ $\overline{HB} \cong \overline{BH'}$ $\overline{GA} \cong \overline{AG}$

b. What is the length of $\overline{GG''}$?

26 units

The distance between line k and line m is 1.6 centimeters.

The preimage is reflected in line k , then in line m . Describe a single transformation that maps the blue figure to the green figure.

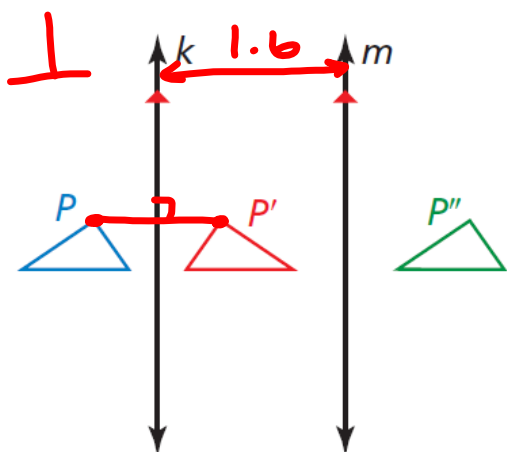


Translation

$$2(1.6) = 3.2 \text{ cm right}$$

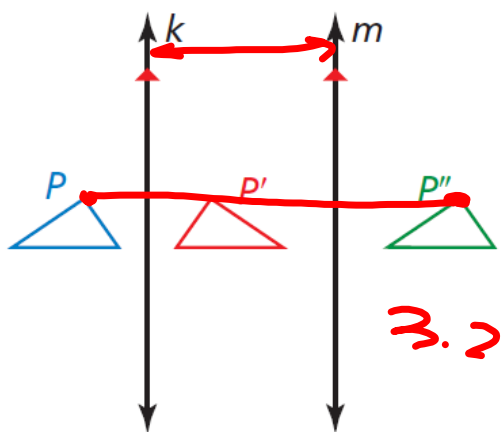
The distance between line k and line m is 1.6 centimeters.

What is the relationship between $\overline{PP'}$ and line k ? Explain.



The distance between line k and line m is 1.6 centimeters.

What is the distance between P and P'' ?



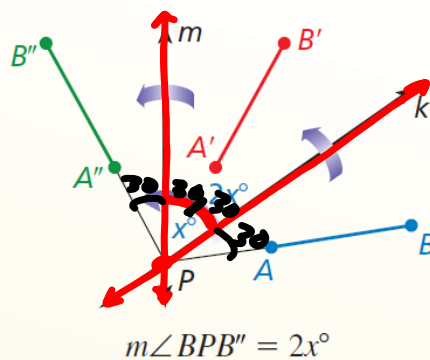
Theorem

Reflections in Intersecting Lines Theorem

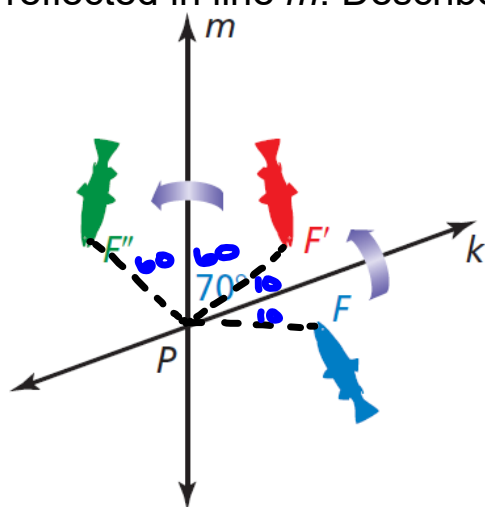
If lines k and m intersect at point P , then a reflection in line k followed by a reflection in line m is the same as a rotation about point P .

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

Proof Ex. 31, p. 606

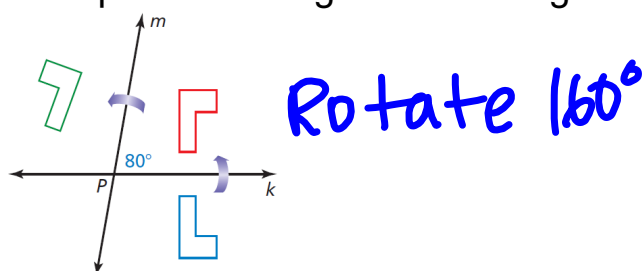


In the diagram, the figure is reflected in line k . The image is then reflected in line m . Describe a single transformation that maps F to F'' .

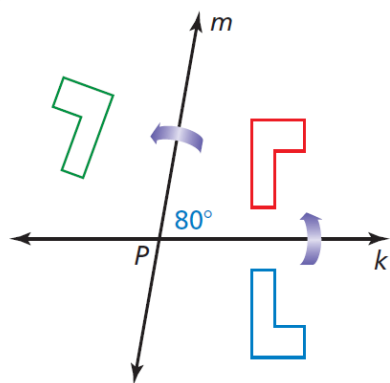


Rotation of 140°

In the diagram, the preimage is reflected in line k , then in line m . Describe a single transformation that maps the blue figure onto the green figure.



A rotation of 76° maps C to C' . To map C to C' using two reflections, what is the measure of the angle formed by the intersecting lines of reflection?



$$\frac{76}{2} = 38^\circ$$

A rotation of 76° maps C to C' . To map C to C' using two reflections, what is the measure of the angle formed by the intersecting lines of reflection?

due Wednesday

11.4 online hw Pg 574-576 #s 1, 2, 3-17 odd
18-21, 28, 30

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