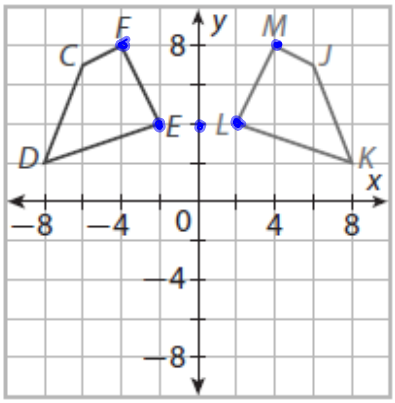
3.2 Proving Figures are Congruent Using Rigid Motions

Essential Question: How can you determine whether two figures are congruent?

Two plane figures are congruent if and only if one can be obtained from the other by a sequence of rigid motions (that is, by a sequence of reflections, translations, and/or rotations).

Remember, in order for 2 figures to be congruent to each other they must have the same size and shape!

Example: Use the definition of congruence to decide whether the two figures are congruent. Explain your answer.



(Y-axis Reflection)

$E=(-2,4)$ $L=(2,4)$

Y-axis - $(-x,y)$

X-axis - $(x,-y)$

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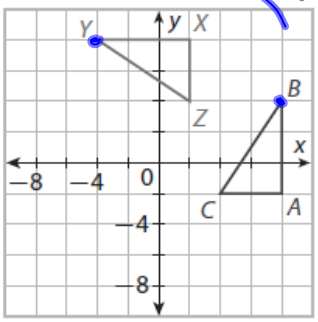


The two figures appear to be the same/different.

You can map $\triangle ABC$ to $\triangle XYZ$

by _____.

This is/is not a rigid motion that maps $\triangle ABC$ to $\triangle XYZ$, so the two figures are/are not congruent.

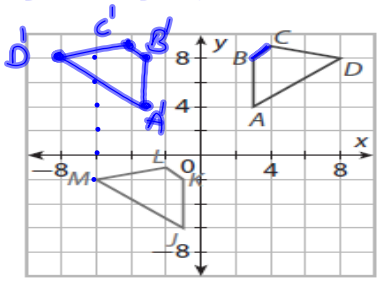
The coordinate notation for the rotation is _____.

B = (8, 4) Y = (−4, 8)

(−y, x)

Pre Image

$\underline{ABCD} \cong \underline{JKLM}$



Reflect over y − (−x, y)

R2 > (x + 2, y − 10)

D10

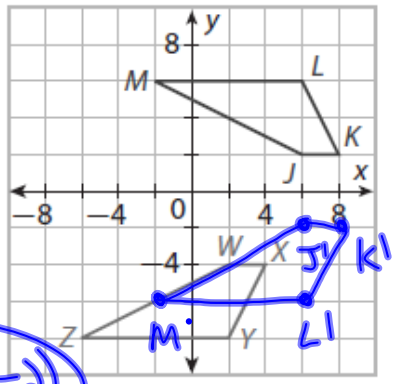
(x, y) → (−x, y) → (x + 2, y − 10)

The figures shown are congruent. Find a sequence of rigid motions that maps one figure to the other. Give coordinate notation for the transformations you use. $JKLM \cong WXYZ$

X-axis $(x, -y)$

L 4, D 2

$(x-4, y-2)$



$(x, y) \rightarrow (x, -y) \rightarrow (x-4, y-2)$

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pg. 132 #6-8

Door	New Seats 1	2	3	4	5	6
1	Gage	CC	Hillary	Hannah	Cody	Dylan
2	Dax	Holden	Kaylan	Brooklyn	Delfino	Andrea
3			Thomas			Peyton
4		Carson				
5						