Geometry – Unit 2 Practice **Name: _____!**

Congruence Transformations B

G.CO.B.6 **Date: _____ Pd: ____**

Quick Concept: Two shapes are congruent if there is a single or sequence of isometric transformations that map one onto the other.

1) Determine whether the transformation would establish congruence between two shapes.

a) $R(x,y)\rightarrow(x,-y)$ YES or NO

b) $S(x,y)\rightarrow(x+4,y-9)$ YES or NO

c) $G(x,y)\rightarrow(3x,3y)$ YES or NO

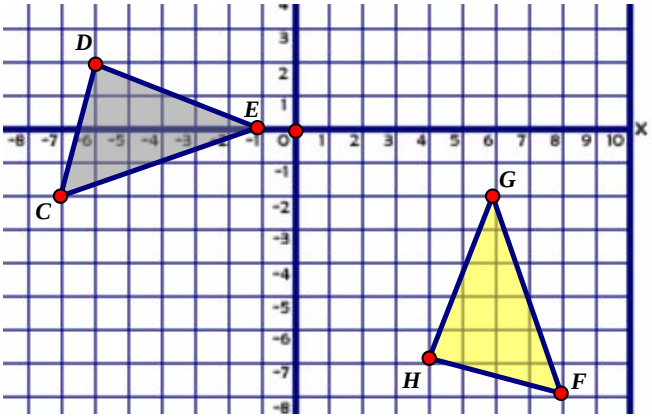
d) $H(x,y)\rightarrow(y,-x)$ YES or NO

e) $Q(x,y)\rightarrow(2x,y+3)$ YES or NO

f) $M(x,y)\rightarrow(-x+3,y)$ YES or NO

2) Name the transformation or sequence of transformations that map one figure onto the other. Then complete the congruence statement.

a)



Transformations: (Start with ΔDEC)

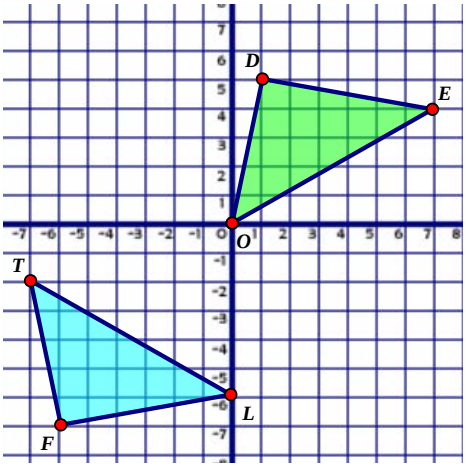
A rotation about the origin at _____°

Followed by

A translation of _____

$\Delta DEC \cong \Delta$_____

b)



Transformations: (Start with ΔFLT)

A reflection over the _____

Followed by

A translation of _____

$\Delta FLT \cong \Delta$_____

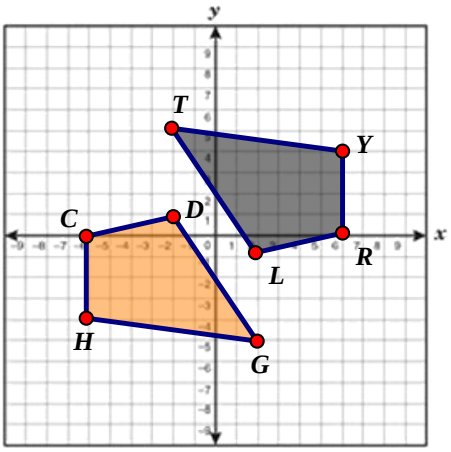
3) A student finds two triangles on two different pieces of patty paper. He places them on the desk to compare them. He slides and then turns the paper so that the two triangles on are on top of each other and then he notices that he needs to flip one of the papers so that they will land exactly on top of each other. The student concludes that they are copies of each other. Mathematically, what did this procedure prove about the triangles?

4) What rule(s) would establish that these two polygons are congruent to each other?

a)

$W(CDGH) \rightarrow (RLTY)$

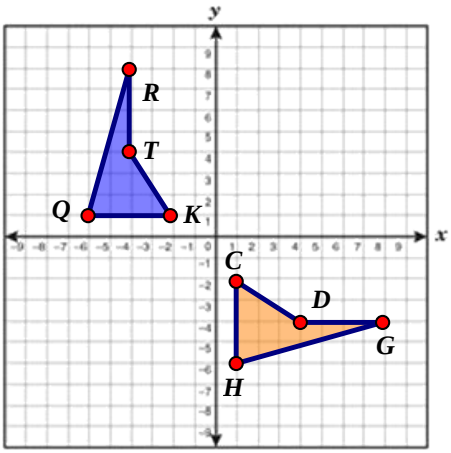
$W(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$



b)

$G(CDGH) \rightarrow (KTRQ)$

$G(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$



c)

$G(CDGH) \rightarrow (C'D'G'H)$

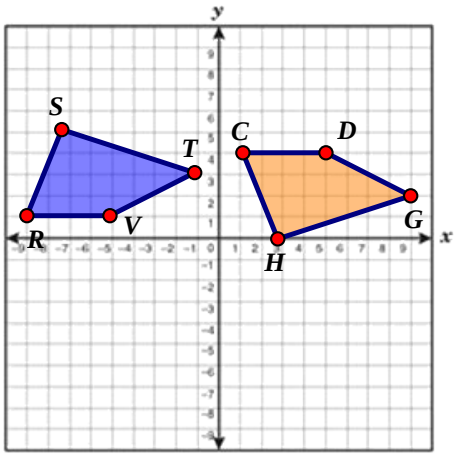
A Translation

$G(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$

$P(C'D'G'H') \rightarrow (RVTS)$

followed by a reflection

$P(x, y) \rightarrow (\_\_\_\_\_, \_\_\_\_\_)$



5) A student takes Δ*ABC* and dilates it two times bigger making Δ*A'B'C'*. Once that is done he places Δ*A'B'C'* onto Δ*DEF* and says, "Δ*ABC* is congruent to Δ*DEF* because I was able to map one onto the other." Is this student correct, **explain**.

6) Is Δ*ABC*, *A*(-1, 4), *B*(3, 1), *C*(0, 4) congruent to Δ*DEF*, *D*(4, -1), *E*(1, 3), *F*(4, 0)? **YES or NO**
Explain how you determined your answer.

7) Δ*ABC* is in the plane with Δ*DEF*. Jeff is able to reflect Δ*DEF* over the *x*-axis and then translate it by $\langle -3, 4 \rangle$ to land it exactly onto Δ*ABC*. What does this mean about these two triangles?