## Unit 6 Lesson 3: Types of Transformations

### 1 Why is it a Dilation? (Warm up)

#### Student Task Statement

Point $B$ was transformed using the coordinate rule $\left(x,y\right)\rightarrow \left(3x,3y\right)$.



1. Add these auxiliary points and lines to create 2 right triangles: Label the origin $P$. Plot points $M=\left(2,0\right)$ and $N=\left(6,0\right)$. Draw segments $PB^{′},MB,$ and $NB^{′}$.
2. How do triangles $PMB$ and $PNB^{′}$ compare? How do you know?
3. What must be true about the ratio $PB:PB^{′}$?

### 2 Congruent, Similar, Neither?

#### Student Task Statement

Match each image to its rule. Then, for each rule, decide whether it takes the original figure to a congruent figure, a similar figure, or neither. Explain or show your reasoning.

A



B

C



D



1. $\left(x,y\right)\rightarrow \left(\frac{x}{2},\frac{y}{2}\right)$
2. $\left(x,y\right)\rightarrow \left(y,-x\right)$
3. $\left(x,y\right)\rightarrow \left(-2x,y\right)$
4. $\left(x,y\right)\rightarrow \left(x−4,y−3\right)$

### 3 You Write the Rules

#### Student Task Statement



1. Write a rule that will transform triangle $ABC$ to triangle $A^{′}B^{′}C^{′}$.
2. Are $ABC$ and $A^{′}B^{′}C^{′}$ congruent? Similar? Neither? Explain how you know.
3. Write a rule that will transform triangle $DEF$ to triangle $D^{′}E^{′}F^{′}$.
4. Are $DEF$ and $D^{′}E^{′}F^{′}$ congruent? Similar? Neither? Explain how you know.



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