## Unit 6 Lesson 1: Rigid Transformations in the Plane

### 1 Traversing the Plane (Warm up)

#### Student Task Statement



1. How far is point $A$ from point $B$?
2. What transformations will take point $A$ to point $B$?

### 2 Transforming with Coordinates

#### Student Task Statement

First, predict where each transformation will land. Next, carry out the transformation.



1. Rotate Figure $H$ clockwise using center $\left(2,0\right)$ by 90 degrees.
Translate the image by the directed line segment from $\left(2,0\right)$ to $\left(3,-4\right)$.
Label the result $R$.
2. Reflect Figure $H$ across the $y$-axis.
Rotate the image counterclockwise using center $\left(0,0\right)$ by 90 degrees.
Label the result $L$.

### 3 Congruent by Coordinates

#### Student Task Statement



1. Calculate the length of each side in triangles $ABC$ and $DEF$.
2. Calculate the measure of each angle in triangles $ABC$ and $DEF$.
3. The triangles are congruent. How do you know this is true?
4. Because the triangles are congruent, there must be a sequence of rigid motions that takes one to the other. Find a sequence of rigid motions that takes triangle $ABC$ to triangle $DEF$.

#### Images for Activity Synthesis





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