## Unit 1 Lesson 12: Defining Translations

### 1 Notice and Wonder: Two Triangles and an Arrow (Warm up)

#### Student Task Statement

What do you notice? What do you wonder?



### 2 What’s the Point: Translations

#### Student Task Statement

1. After a translation, the image of $V$ is $W$. Find at least 3 other points that are taken to a labeled point by that translation.
2. Write at least 1 conjecture about translations.
3. In a new translation, the image of $V$ is $Z$. Find at least 3 other points that are taken to a labeled point by the new translation.
4. Are your conjectures still true for the new translation?



### 3 Translating Triangles

#### Student Task Statement





1. Translate triangle $ABC$ by the **directed line segment** from $A$ to $C$.
	1. What is the relationship between line $BC$ and line $B^{′}C^{′}$? Explain your reasoning.
	2. How does the length of segment $BC$ compare to the length of segment $B^{′}C^{′}$? Explain your reasoning.
2. Translate segment $DE$ by directed line segment $w$. Label the new endpoints $D^{′}$ and $E^{′}$.
	1. Connect $D$ to $D^{′}$ and $E$ to $E^{′}$.
	2. What kind of shape did you draw? What properties does it have? Explain your reasoning.

#### Images for Activity Synthesis

Translate $A$ by the directed line segment $v$.





$m∥m^{′}$





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