Lesson 3: Translating Lines

Classwork

Exercises

1. Draw a line passing through point \( P \) that is parallel to line \( L \). Draw a second line passing through point \( P \) that is parallel to line \( L \) and that is distinct (i.e., different) from the first one. What do you notice?

![Diagram of line passing through point P parallel to line L]

2. Translate line \( L \) along the vector \( \overrightarrow{AB} \). What do you notice about \( L \) and its image, \( L' \)?

![Diagram showing translation of line L along vector AB]
3. Line $L$ is parallel to vector $\overrightarrow{AB}$. Translate line $L$ along vector $\overrightarrow{AB}$. What do you notice about $L$ and its image, $L'$?

4. Translate line $L$ along the vector $\overrightarrow{AB}$. What do you notice about $L$ and its image, $L'$?
5. Line $L$ has been translated along vector $\overrightarrow{AB}$, resulting in $L'$. What do you know about lines $L$ and $L'$?

6. Translate $L_1$ and $L_2$ along vector $\overrightarrow{DE}$. Label the images of the lines. If lines $L_1$ and $L_2$ are parallel, what do you know about their translated images?