Name _____    Date _____

# Lesson 1:  Why Move Things Around?

**Exit Ticket**

First, draw a simple figure and name it Figure $W$.  Next, draw its image under some transformation (i.e., trace your Figure $W$ on the transparency), and then move it.  Finally, draw its image somewhere else on the paper.

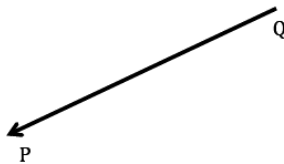Describe, intuitively, how you moved the figure.  Use complete sentences.
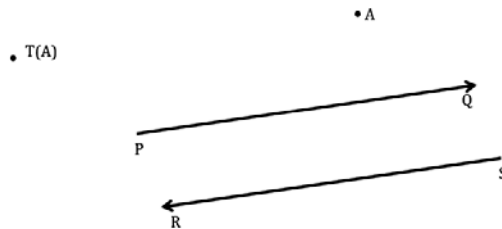
Name _____     Date _____

# Lesson 2:  Definition of Translation and Three Basic Properties
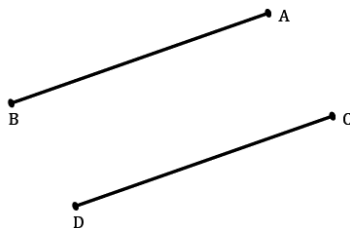
### Exit Ticket

1.  Name the vector in the picture below.



2.  Name the vector along which a translation of a plane would map point $A$ to its image $T(A)$.



3.  Is Maria correct when she says that there is a translation along a vector that maps segment $AB$ to segment $CD$?  If so, draw the vector.  If not, explain why not.



4.  Assume there is a translation that maps segment $AB$ to segment $CD$ shown above.  If the length of segment $CD$ is 8 units, what is the length of segment $AB$?  How do you know?
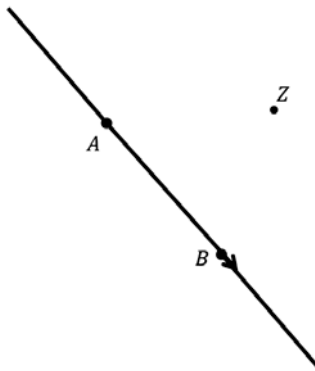
EUREKA
MATH™

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# Lesson 3:  Translating Lines

1. Translate point $Z$ along vector $\overrightarrow{AB}$.  What do you know about the line containing vector $\overrightarrow{AB}$ and the line formed when you connect $Z$ to its image $Z'$?



2. Using the above diagram, what do you know about the lengths of segments $ZZ'$ and $AB$?

3. Let points $A$ and $B$ be on line $L$ and the vector $\overrightarrow{AC}$ be given, as shown below.  Translate line $L$ along vector $\overrightarrow{AC}$. What do you know about line $L$ and its image, $L'$?  How many other lines can you draw through point $C$ that have the same relationship as $L$ and $L'$?  How do you know?
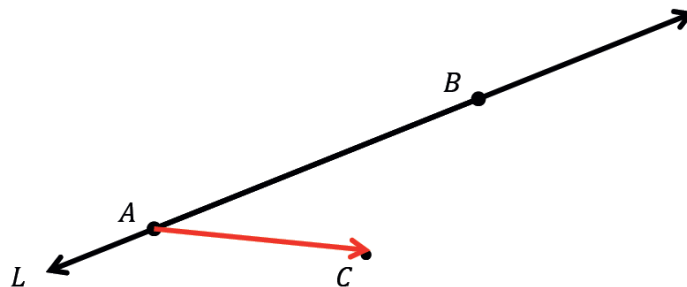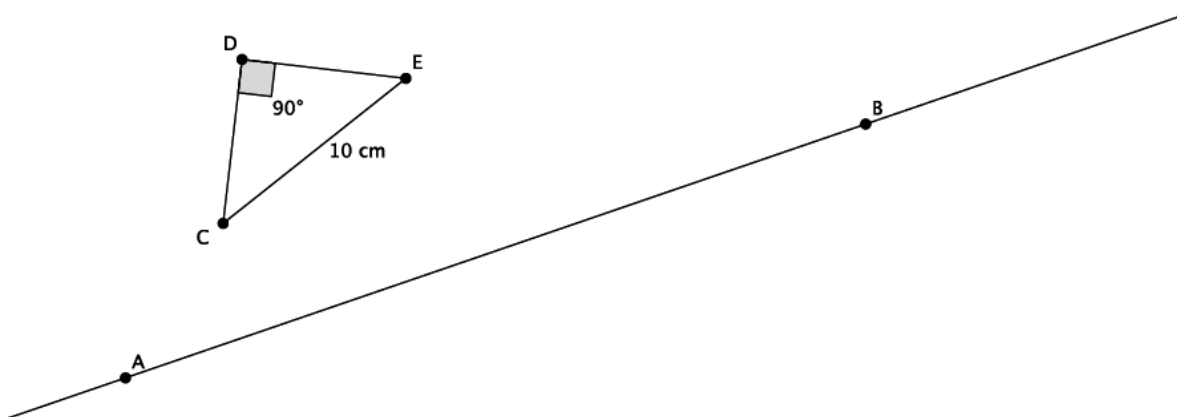
Name _____          Date _____

# Lesson 4:  Definition of Reflection and Basic Properties

**Exit Ticket**

1.  Let there be a reflection across line $L_{AB}$.  Reflect $\triangle\,CDE$ across line $L_{AB}$.  Label the reflected image.

Picture not drawn to scale.



2.  Use the diagram above to state the measure of $Reflection(\angle CDE)$.  Explain.

3.  Use the diagram above to state the length of segment $Reflection(CE)$.  Explain.

4.  Connect point $C$ to its image in the diagram above.  What is the relationship between line $L_{AB}$ and the segment that connects point $C$ to its image?
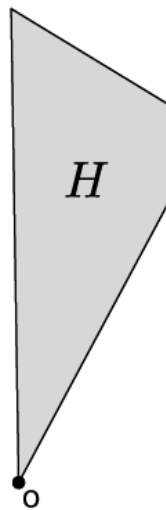
Name _____          Date _____

# Lesson 5:  Definition of Rotation and Basic Properties

**Exit Ticket**

1. Given the figure $H$, let there be a rotation by $d$ degrees, where $d \geq 0$, about $O$.  Let $Rotation(H)$ be $H'$.  Note the direction of the rotation with an arrow.



2. Using the drawing above, let $Rotation_1$ be the rotation $d$ degrees with $d < 0$, about $O$.  Let $Rotation_1(H)$ be $H''$. Note the direction of the rotation with an arrow.
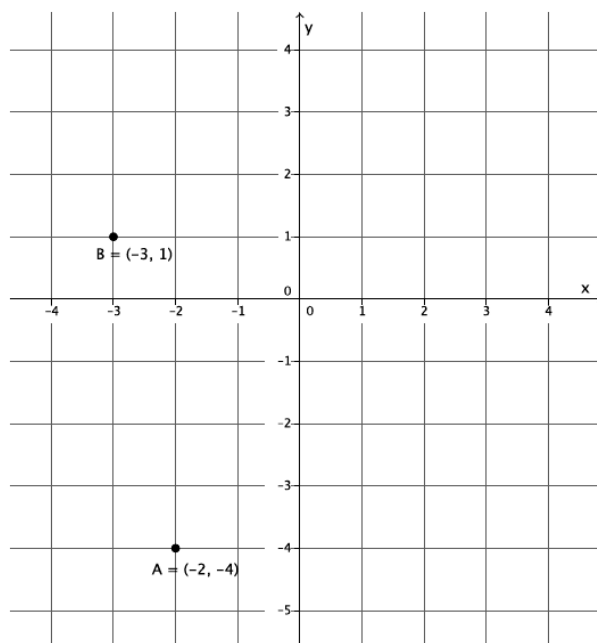
Name _____     Date _____

# Lesson 6: Rotations of 180 Degrees

## Exit Ticket

Let there be a rotation of 180 degrees about the origin. Point $A$ has coordinates $(-2, -4)$, and point $B$ has coordinates $(-3, 1)$, as shown below.



1.  What are the coordinates of $Rotation(A)$? Mark that point on the graph so that $Rotation(A) = A'$. What are the coordinates of $Rotation(B)$? Mark that point on the graph so that $Rotation(B) = B'$.

2.  What can you say about the points $A$, $A'$, and $O$? What can you say about the points $B$, $B'$, and $O$?

3.  Connect point $A$ to point $B$ to make the line $L_{AB}$. Connect point $A'$ to point $B'$ to make the line $L_{A'B'}$. What is the relationship between $L_{AB}$ and $L_{A'B'}$?