

# LESSON DIGITS 9-1 + 9-2

## Translating & Reflecting Figures

3/4/2020

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Goal: I will be able to <b>recognize and describe the translation and reflection of an object.</b>	
Tool Bag Formulas, equations, Vocabulary, etc.	Here's How... Notes & Examples
<b>Transformation</b>	is the change in position, size, or shape of a figure.
<b>Translation</b>	moves every point the same distance and direction
<b>Reflection</b>	flip a figure over a line called the line of reflection (mirror)

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**Example 1** Triangle ABC is translated to triangle A' B' C'.

a) Describe in words, the translation of each point:  
 Moves 3 units to the left and down 1 unit

b) Use arrow notation to show the movement.  
 $A(2, 2) \rightarrow A'(-1, 1)$   
 $B(1, 0) \rightarrow B'(-2, -1)$   
 $C(3, -1) \rightarrow C'(0, -2)$

c) Write a rule to describe the translation.  
 $(x, y) \rightarrow (x-3, y-1)$

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**We try (Do Not Write)** Triangle ABC is translated to triangle A' B' C'.

a) Describe in words, the translation of each point:  
 2 units to the right and 3 units down

b) Use arrow notation to show the movement.  
 $A(-4, 1) \rightarrow A'(-2, -2)$

c) Write a rule to describe the translation.  
 $(x, y) \rightarrow (x+2, y-3)$

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**You Try** PQRS is a parallelogram. Describe in words, use arrow notation, and write a rule to describe the translation.

Words  
 6 units to the right and 2 units up.

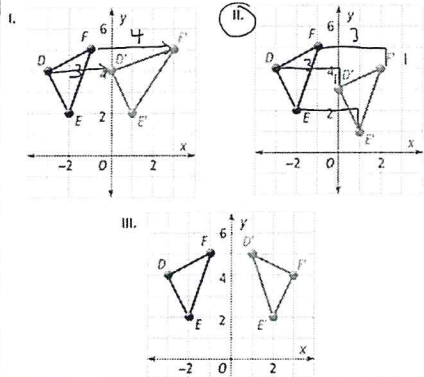
Arrow  
 $P(-3, 2) \rightarrow P'(3, 4)$

Rule  
 $(x, y) \rightarrow (x+6, y+2)$

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You Try  
(with your group)

Which graph shows  $\triangle DEF$  and  $\triangle D'E'F'$ , its image after a translation?



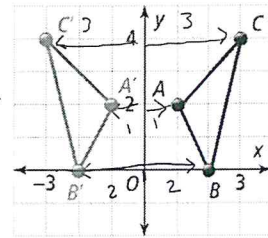
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Reflections  
Example 1

Each point is the same distance away from the line of reflection.

Triangle ABC is reflected across the y-axis to triangle A'B'C'.

a) Describe in words how to map ABC to A'B'C'.  
 $\triangle A'B'C'$  is the image of  $\triangle ABC$  after a reflection across the y-axis.

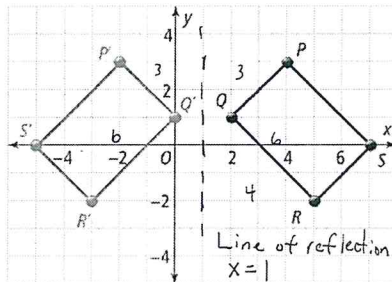


b) Use arrows to show each vertex from ABC to A'B'C'.

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You Try

PQRS is a rectangle that is reflected. Use words and arrows to show how each vertex maps to its image.



Words

P'Q'R'S' is the reflection of PQRS across the line  $x=1$ .

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In Your Groups

Describe the transformation of each shape.

