

Unit 1 - Geometry

What does it mean to transform something?

Do you know the names of any types of Geometric Transformations?

When you perform a transformation the original shape is called the _____ and the new shape is called the _____.

Translation

To slide an object left, right, up and/or down.

Dilation

To Enlarge or Shrink an object.

Reflection

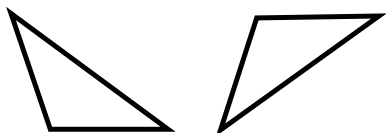
To flip an object over a line.

Rotation

To turn an object over a point.

What type of transformations are the following?

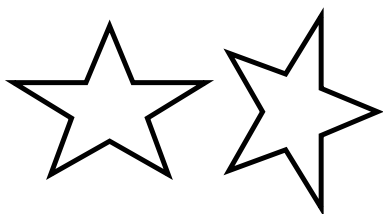
1.



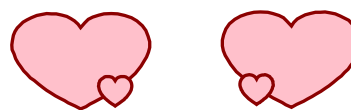
2.



3.



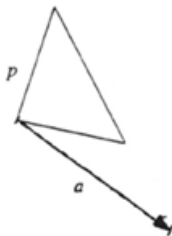
4.



Translations: To slide an object

1. When you translate an object does the shape stay the same?
2. We call this rigid motion.
3. Translations are the most common transformation in this class.
4. Look around the room, can you see any translations?

1. a. Draw the image of figure p when translated using arrow a . Explain your method.



Include the answers to the following questions in your explanation. Use complete sentences!

- What method did you use?
- Is there only one possible answer?
- What does the arrow tell you?
- How do you know how far to move?

Translations

1. Gerald is rearranging the furniture in his living room. He has to leave before he is finished, so he draws the diagram below for his wife to place the endtable. Draw the new position of the endtable.

**Name:** _____

Include the answers to the following questions in your explanation. Use complete sentences!

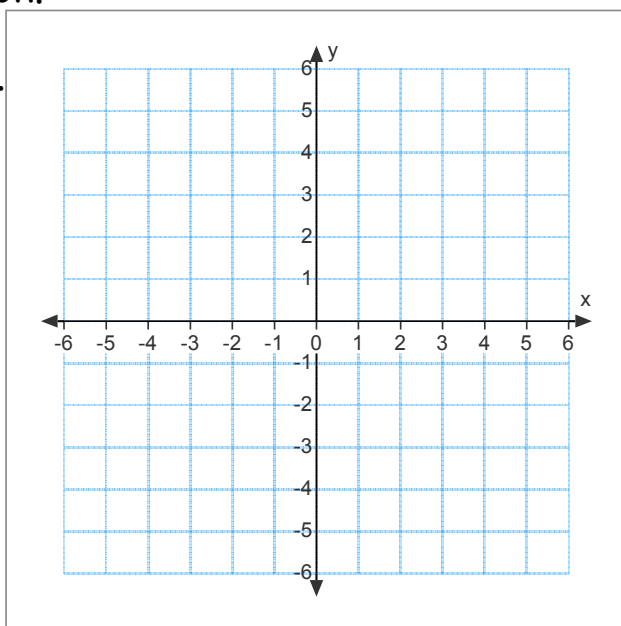
- What method did you use?
- Is there only one possible answer?
- What does the arrow tell you?
- What do you call this motion?
- What could you call the table before it moved? After?

When you translate on a coordinate plane you can write algebraic rules to describe the transformation.

$\triangle JEN$ with $J(2, 3)$, $E(-1, 0)$, $N(1, 1)$.

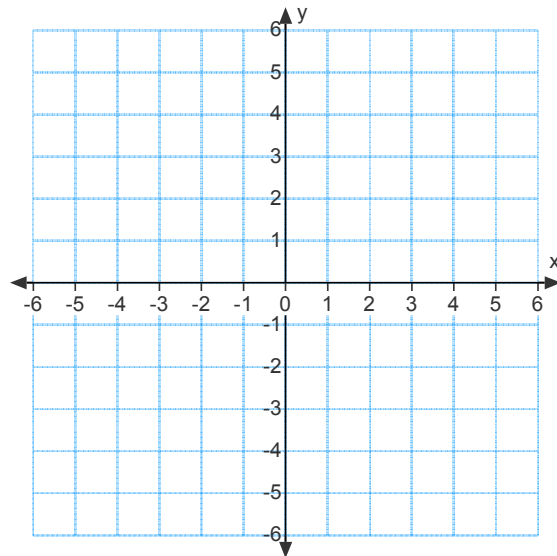
Translate it according

to the rule $T(-3, 2)$.

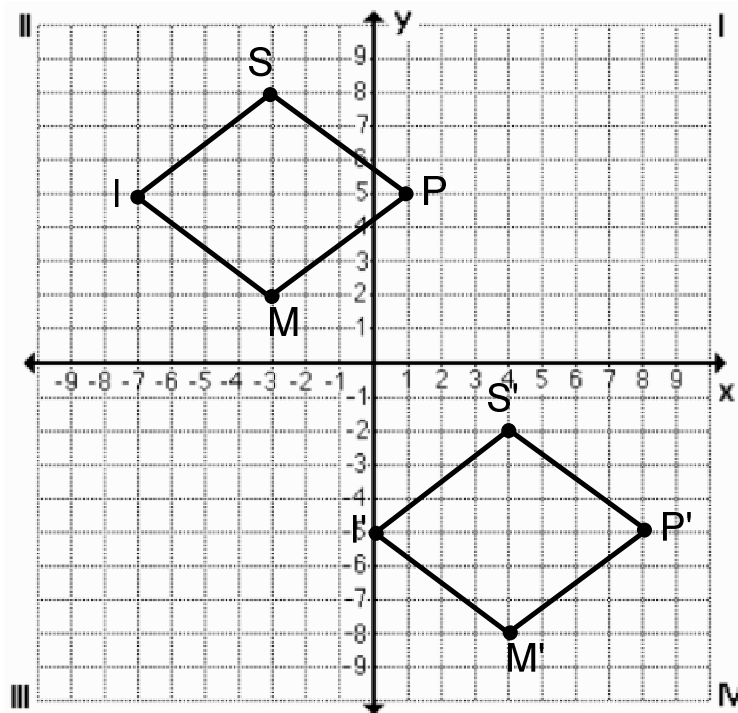


$\triangle CAT$ with $C(-1, 3)$ $A(2, -2)$ and $T(2, 3)$. Translate by the rule:

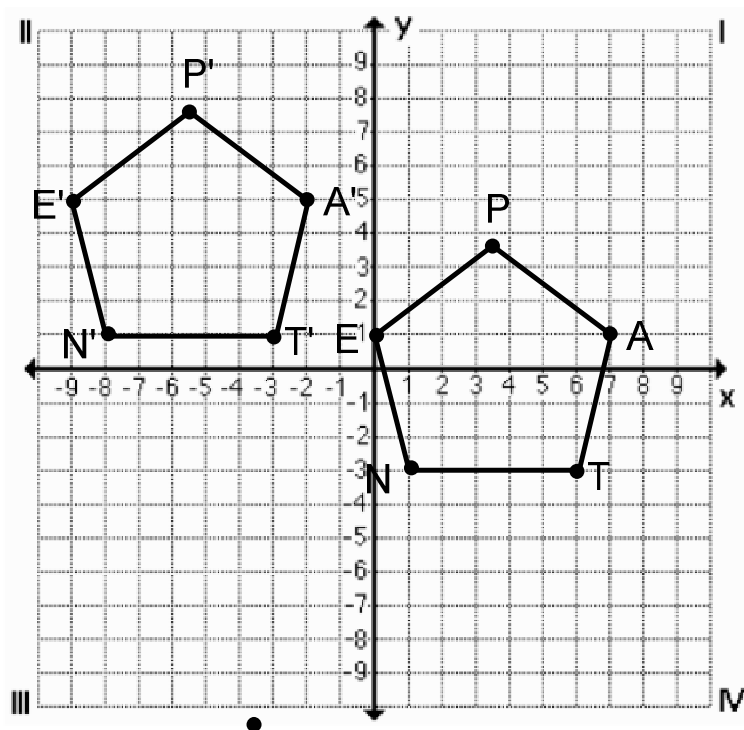
$T(x + 1, y - 4)$. Can you do it without graphing?



Describe the translation from the preimage to the image.



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Marching Band Problem: You are the director of the marching band at your school, and you are designing the half-time show for the homecoming game. Each band member will move from their original location (given below) to their new location based on the rule you give each student. Be creative with your final scene because you really want to impress the audience!

Guidelines:

- Graph each band member's original location. Label each point.
- Write the rule that will translate each person to their new spot.
- When finished, switch papers with another student in your class and have them follow your rules to see what the new pattern is!

Pre-Image	Rule	Image
A (-3, 1)	$T(x+1, y-2)$	
B (-1, 1)	$T(x-3, y-8)$	
C (1, 1)	$T(4, -6)$	
D (3, 1)	$T(6, 7)$	
E (-3, 2)	$T(0, 2)$	
F (-1, 2)		F' (4, -5)
G (1, 2)		G' (-2, -2)
H (3, 2)		H' (3, -6)
I (-3, 3)		I' (-5, 4)
J (-1, 3)		J' (7, 4)

