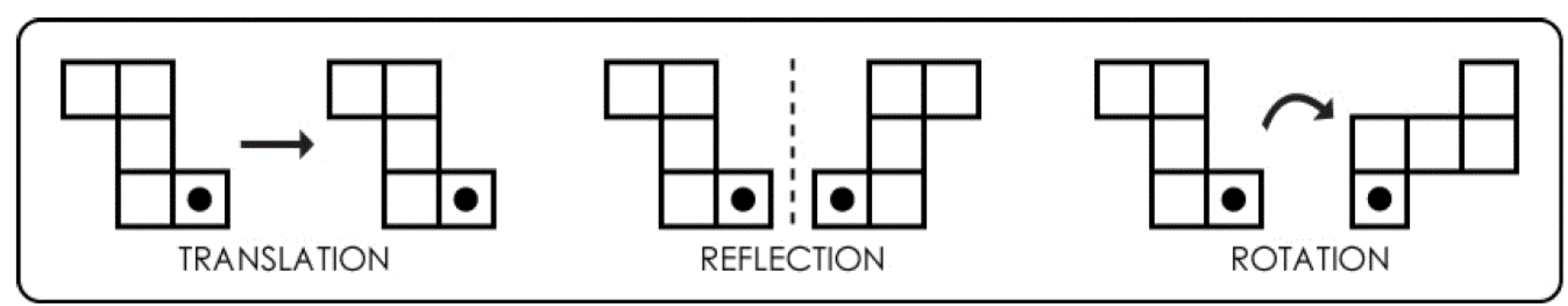


SLIDES **FLIPS** **TURNS**

THE RIGID MOTIONS

Any transformation that moves a figure without changing its size and shape.

WARM-UP

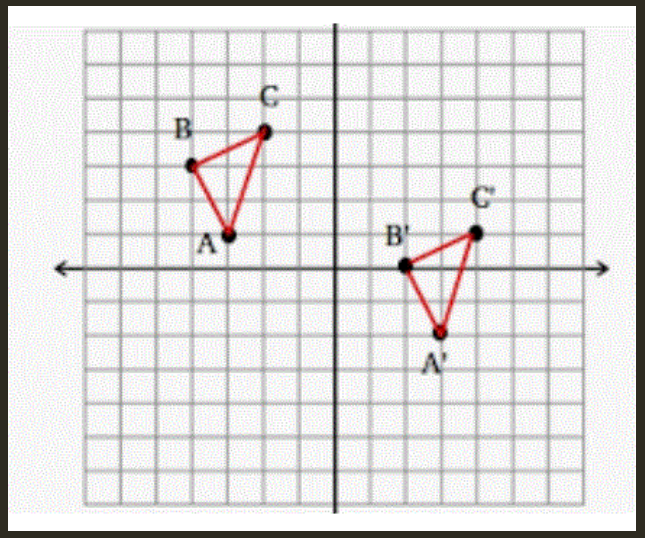
1) Given T (x, y) → (x – 3, y + 4).

   a) What is the image of A (-5, 7)?

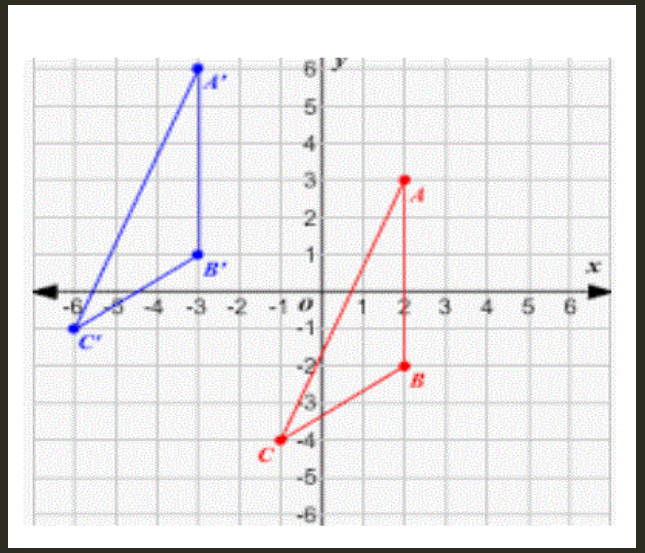
   b) What is the pre-image of D' (10,- 6)?

2) ΔA'B'C' is the image of ΔABC. Write the translation rule (coordinate notation) for the graphs below.

a)



b)



WARM-UP

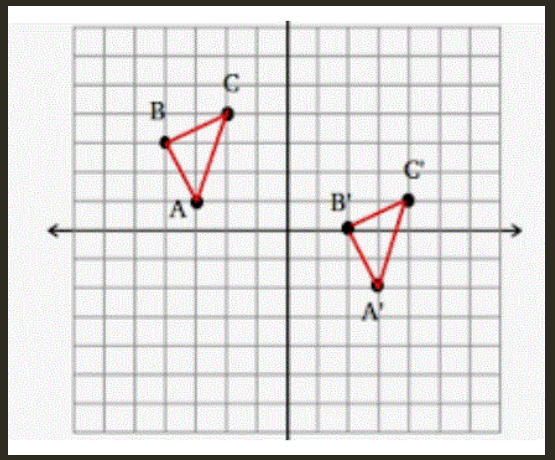
1) Given T (x, y) → (x – 3, y + 4).

a) What is the image of A (-5, 7)? **A' (-8, 11)**

b) What is the pre-image of D' (10,- 6)? **D (13, -10)**

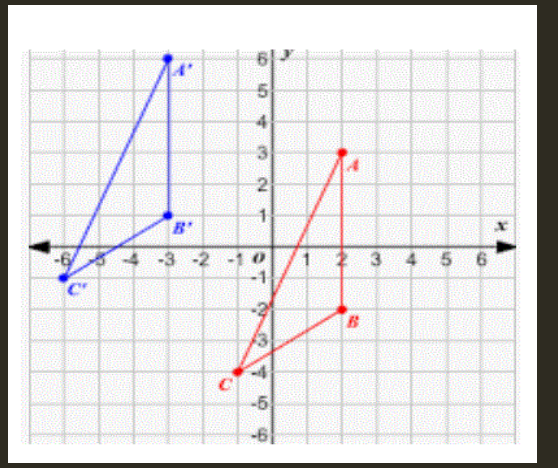
2) ΔA'B'C' is the image of ΔABC. Write the translation rule (coordinate notation) for the graphs below.

a)



T(x, y) → (x + 6, y – 3)

b)



T(x, y) → (x - 5, y + 3)

GEOMETRY IN THE REAL WORLD

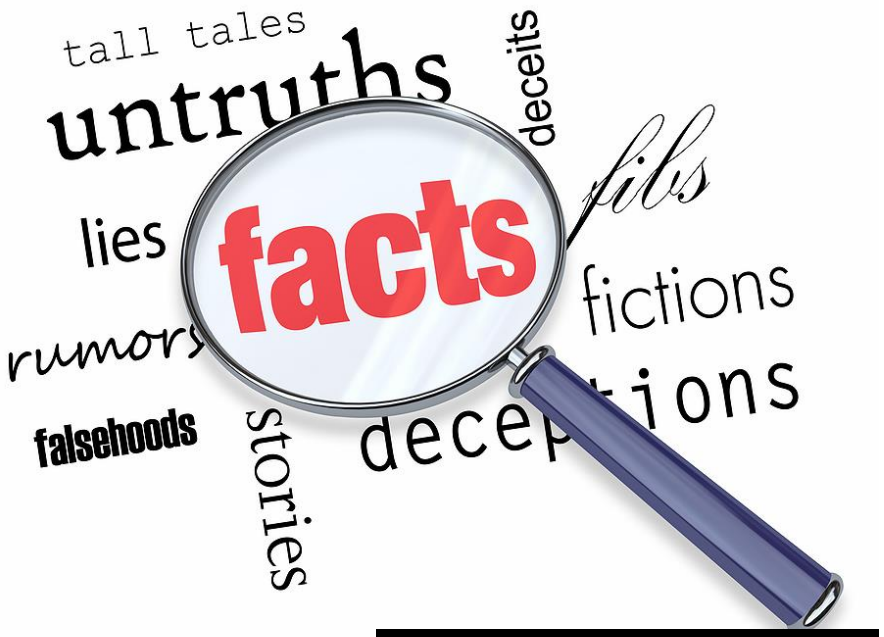
When you work on a jigsaw puzzle, what transformation(s) can not be performed on the pieces? Explain.

REFLECTION

A transformation that creates a mirror image across a line.

REFLECTIONS
MATH SHORT VIDEO

1) Watch the video about reflections.
2) Write down 5 facts about reflections.



REFLECTIONS

MATH SHORT VIDEO

Now, use what you learned to fill in the blanks of the cloze paragraph on the next slide.

MORE ABOUT REFLECTIONS

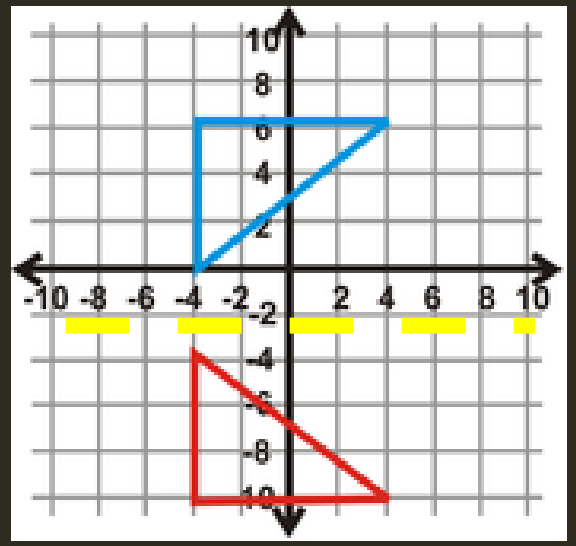
A reflection is a transformation that flips a figure across a line called a line of reflection. Each reflected point is the same distance from the line of reflection as its corresponding point on the pre-image, but on the opposite side of the line. So, the resulting image and the pre-image are mirror images of each other.

MORE ABOUT REFLECTIONS

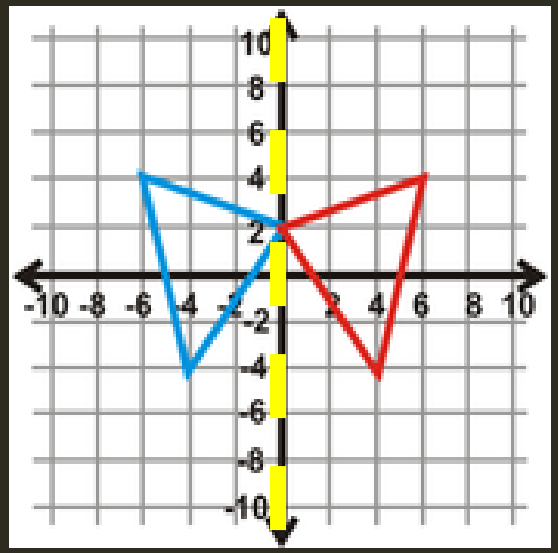
You can reflect a figure across the following lines:

1) x-axis
2) y-axis
3) line $y = x$
4) Line $y = -x$
5) Any horizontal line
6) Any vertical line

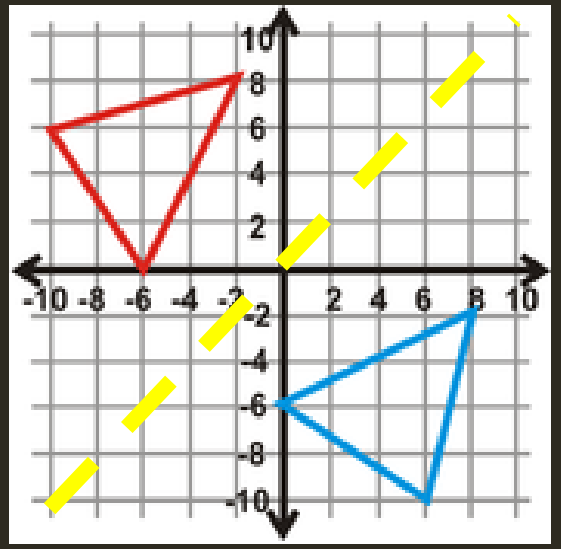
IDENTIFY THE LINE OF REFLECTION:



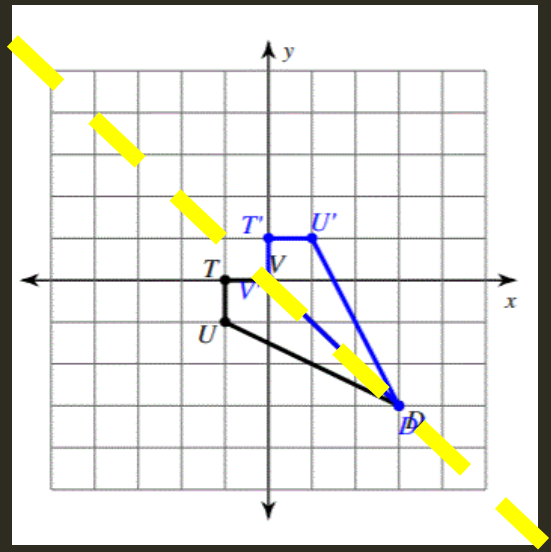
y = -2



y-axis

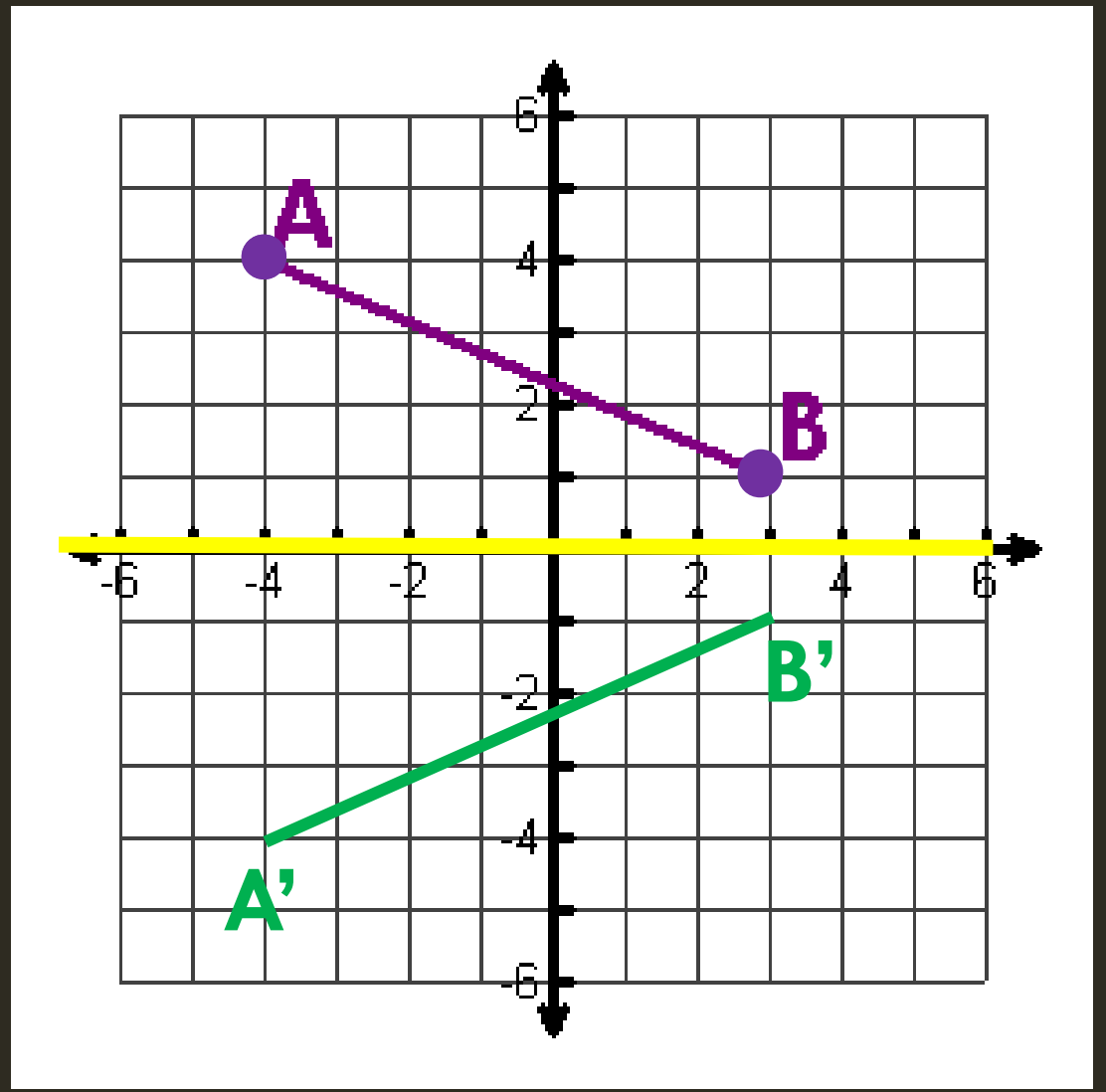


Line y = x



Line y = -x

REFLECT ACROSS THE X-AXIS



COORDINATE (GENERIC) NOTATION

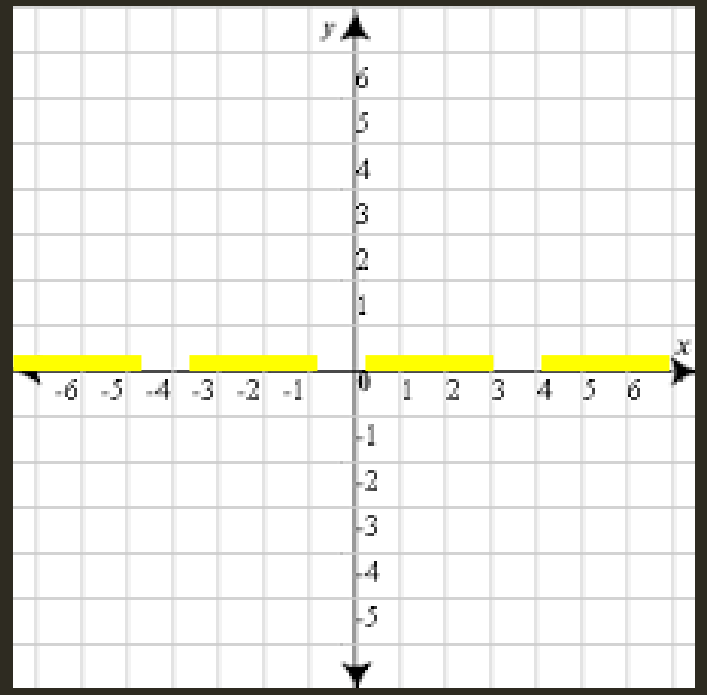
A way to represent a transformation using numbers, operations, and variables.

EX: REFLECT ACROSS THE X-AXIS

$r_{(x,y)} \rightarrow (x, -y)$

Reflect

Change the sign of the y.



COORDINATE (GENERIC) NOTATION

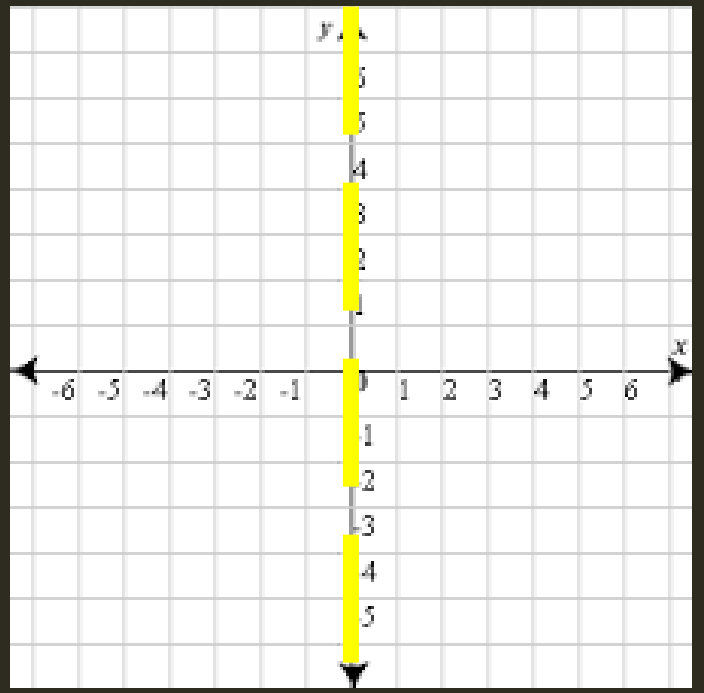
A way to represent a transformation using numbers, operations, and variables.

EX: REFLECT ACROSS THE Y-AXIS

$r_{(x,y)} \rightarrow (-x, y)$

Reflect

Change the sign of the x.



COORDINATE (GENERIC) NOTATION

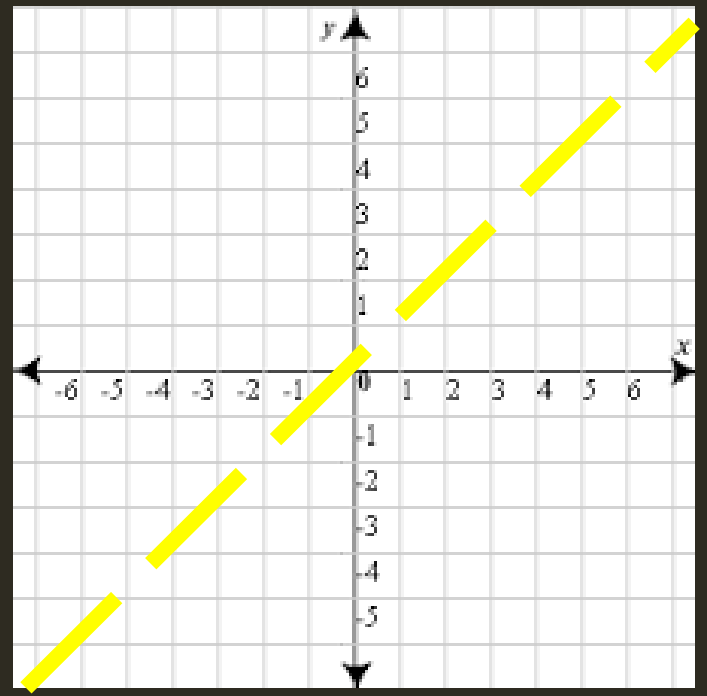
A way to represent a transformation using numbers, operations, and variables.

EX: REFLECT ACROSS THE LINE Y = X

$r_{(x,y)} \rightarrow (y, x)$

Reflect

Swap the x with y.



COORDINATE (GENERIC) NOTATION

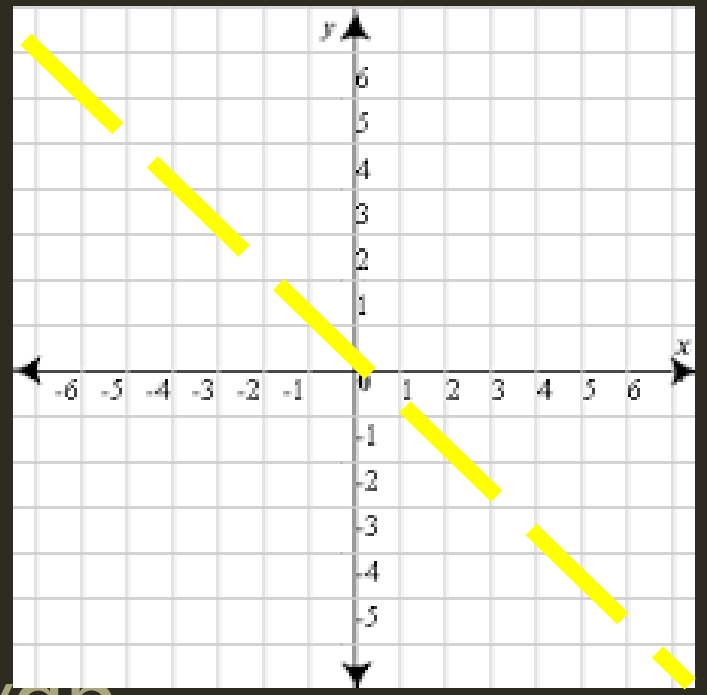
A way to represent a transformation using numbers, operations, and variables.

EX: REFLECT ACROSS THE LINE Y = -X

$r_{(x,y)} \rightarrow (-y, -x)$

Reflect

Change both signs and Swap.



TRANSFORMATION RULES

TRANSFORMATIONS

TRANSLATION→SLIDE

Translate right→ (x + #, y)

Translate left→ (x – #, y)

Translate up→ (x, y + #)

Translate down→ (x, y – #)

REFLECTION→FLIP

Across x-axis→ (x , -y) Change the Sign of y

Across y-axis→ (-x , y) Change the Sign of x

Across y = x → (y , x) Swap Both

Across y = -x → (-y , -x) Change Both Signs & Swap

ROTATION→TURN

90 CW & 270 CCW → (y , -x) Change Sign of x & Swap

90 CCW & 270 CW → (-y , x) Change Sign of y & swap

180 either way → (-x , -y) Change Both Signs

REFLECT ACROSS THE X-AXIS

$$(x, y) \rightarrow (x, -y)$$

Change the sign of the y-value

REFLECT ACROSS THE X-AXIS

Change the sign of y and keep the x

$$D(-2,4) \rightarrow D'(-2,-4)$$

$$I(0,-8) \rightarrow I'(0,8)$$

$$G(-3,5) \rightarrow G'(-3,-5)$$

REFLECT ACROSS THE Y-AXIS

$$(x, y) \rightarrow (-x, y)$$

Change the sign of the x-value

REFLECT ACROSS THE Y-AXIS

Change the sign of x and keep the y

$$C(1,2) \rightarrow C'(-1,2)$$

$$A(-3,-5) \rightarrow A'(3,-5)$$

$$T(4,-1) \rightarrow T'(-4,-1)$$

REFLECT ACROSS Y = X

$$(x, y) \rightarrow (y, x)$$

Swap x and y

REFLECT ACROSS Y = X

Swap the x with the y

$B(-7,-12) \rightarrow B'(-12,-7)$

$I(8,-2) \rightarrow I'(-2,8)$

$G(9,13) \rightarrow G'(13,9)$

REFLECT ACROSS Y = -X

$$(x, y) \rightarrow (-y, -x)$$

Change both signs and Swap.

REFLECT ACROSS Y = -X

Change Both Signs and Swap

$M(13,21) \rightarrow M'(-21,-13)$

$A(-2,9) \rightarrow A'(-9,2)$

$N(17,-24) \rightarrow N'(24,-17)$

HOMEWORK

COMPLETE THE TRANSLATIONS AND REFLECTIONS PRACTICE

INDEPENDENT PRACTICE