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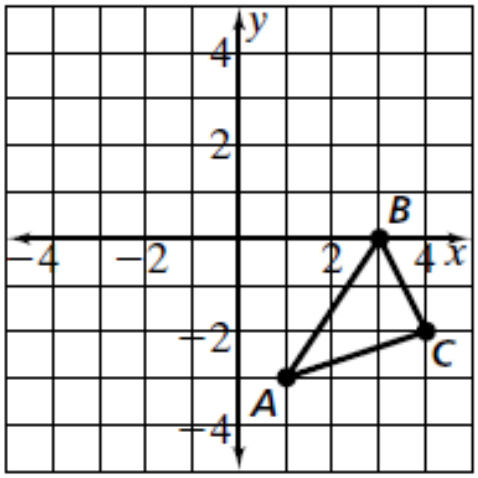
A **reflection** is a transformation which _____ the figure over a _____.

This line is called the_____ _____ _____.

Example 1:
ΔABC is being reflected over the *x*-axis.

Draw and label the image *ΔA'B'C'*.



We can use an arrow to describe this reflection.

$\Delta ABC \rightarrow \Delta A'B'C'$

What are the coordinates of:

A _____ → *A'* _____

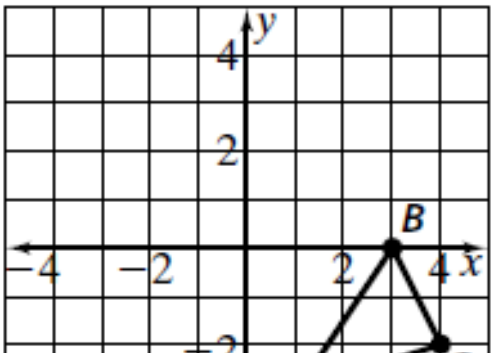
B _____ → *B'* _____

C _____ → *C'*_____

Write a general rule for an <u>*x*-axis</u> reflection:

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

Tell me more about this figure, is it congruent or similar? Explain how you know.



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Example 2:

ΔABC is reflected over the *y*-axis.

Draw the image $\Delta A'B'C'$.

What are the coordinates of:

A _____ → *A'* _____

B _____ → *B'* _____

C _____ → *C'* _____

Write a general rule for a *y*-axis reflection:

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

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Example 3:

a) Draw ΔJKL which has coordinates J (0,2), K (3,4), and L (5,1).

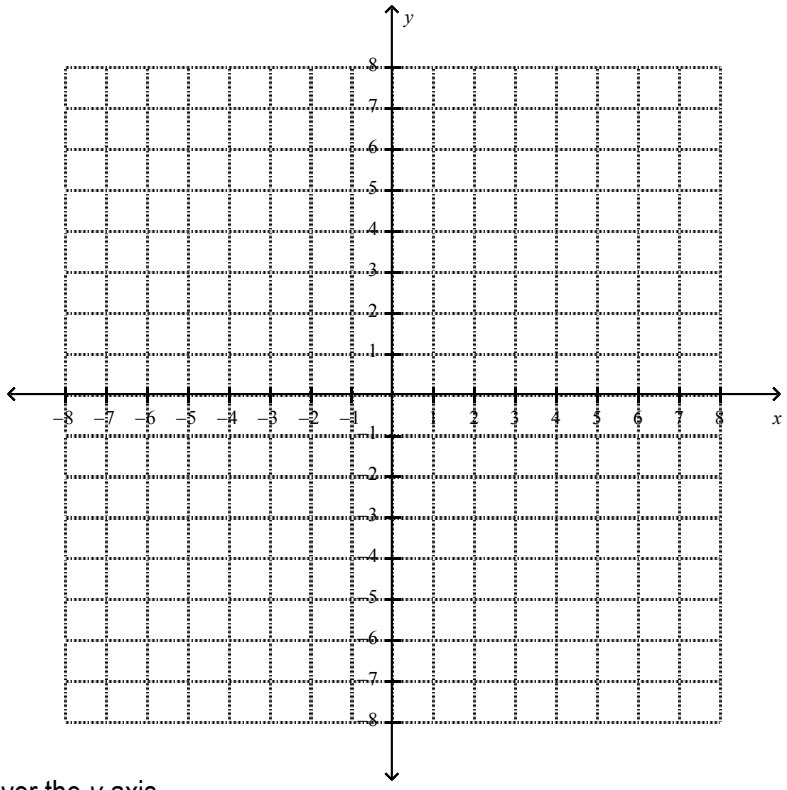
b) Draw the image $\Delta J'K'L'$ after a reflection of ΔJKL over the x-axis.

c) List the coordinates of $J'K'L'$.

J (0, 2) → J' _____

K (3, 4) → K' _____

L (5, 1) → L' _____



d) Draw the image $\Delta J''K''L''$ after a reflection of $\Delta J'K'L'$ over the y-axis.

e) List the coordinates of $J''K''L''$.

J'_____ → J'' _____

K'_____ → K'' _____

L'_____ → L'' _____

f) Describe a different combination of two reflections that would move ΔJKL to $\Delta J''K''L''$.

g) Is this new image congruent or similar to the original figure?

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Example 4:

a) Draw ΔABC which has coordinates $A(0,1)$, $B(3,4)$, and $C(5,1)$.

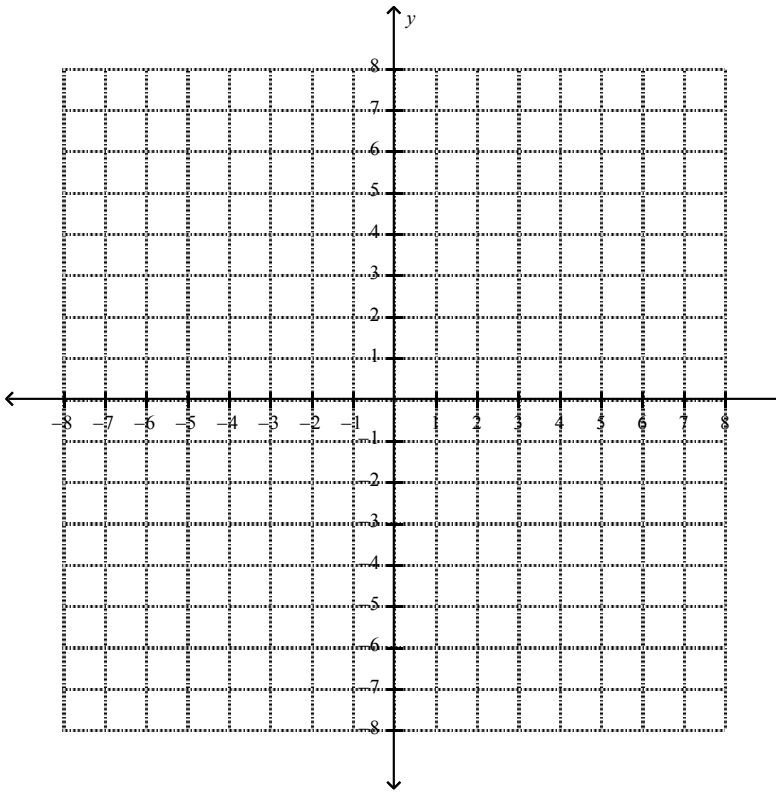
b) Draw the image $\Delta A'B'C'$ after a reflection of ΔABC over $x = -1$.

c) List the coordinates of $A'B'C'$.

A (0, 1) → A' _____

B (3, 4) → B' _____

C (5, 1) → C' _____



Example 5:

a) Draw ΔABC which has coordinates $A(0,1)$, $B(3,4)$, and $C(5,1)$.

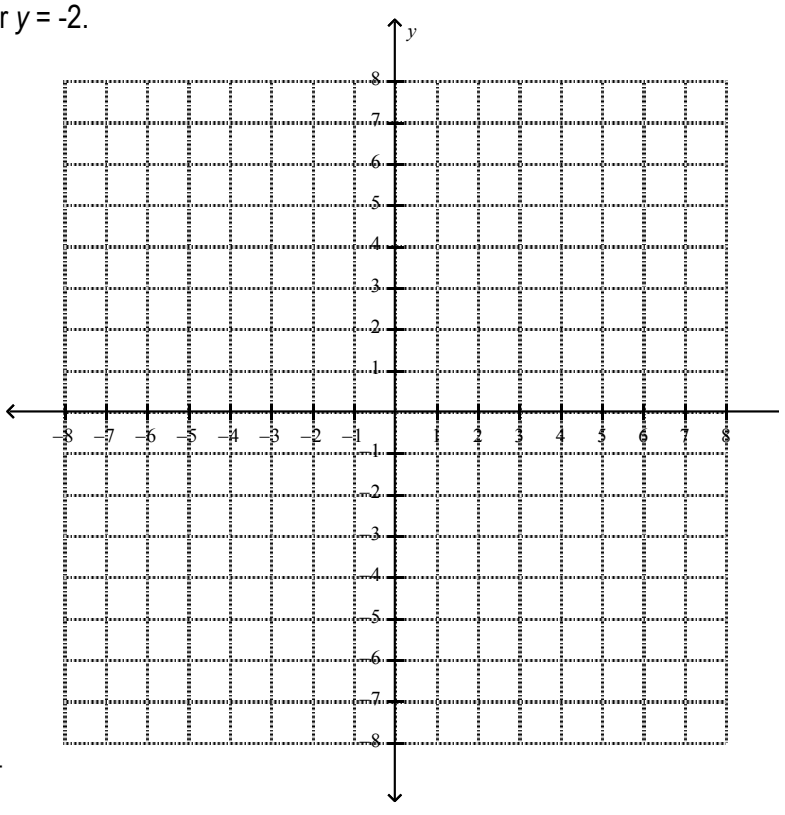
b) Draw the image $\Delta A'B'C'$ after a reflection of ΔABC over $y = -2$.

c) List the coordinates of $A'B'C'$.

A (0, 1) → A' _____

B (3, 4) → B' _____

C (5, 1) → C' _____



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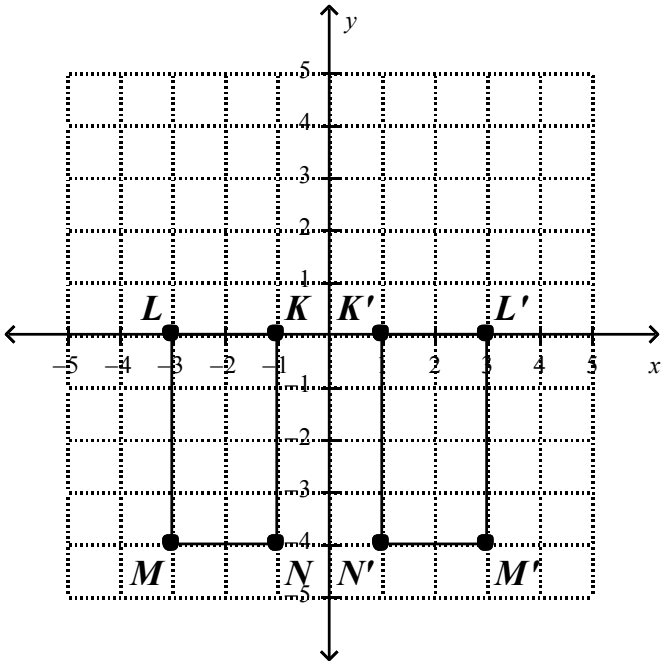
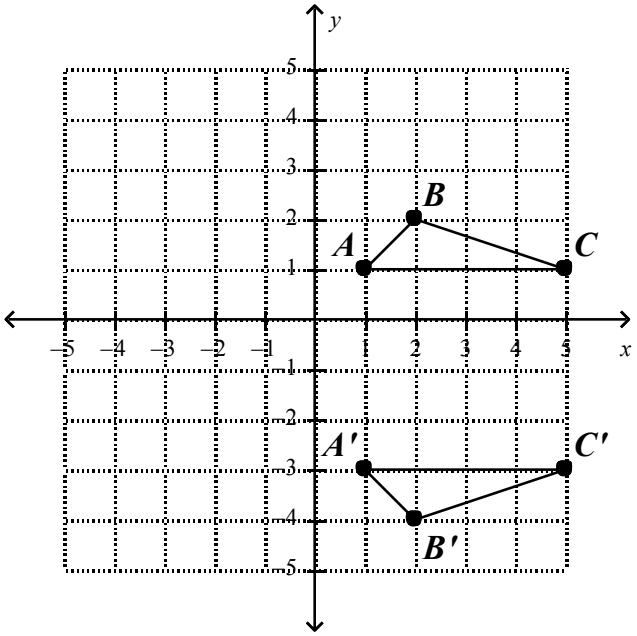
Example 6:

Draw the line of reflection which caused rectangle *KLMN* to reflect onto rectangle *K'L'M'N'*. What is the equation of the line of reflection?



Example 7:

Draw the line of reflection which caused triangle *ABC* to reflect onto triangle *A'B'C'*. What is the equation of the line of reflection?



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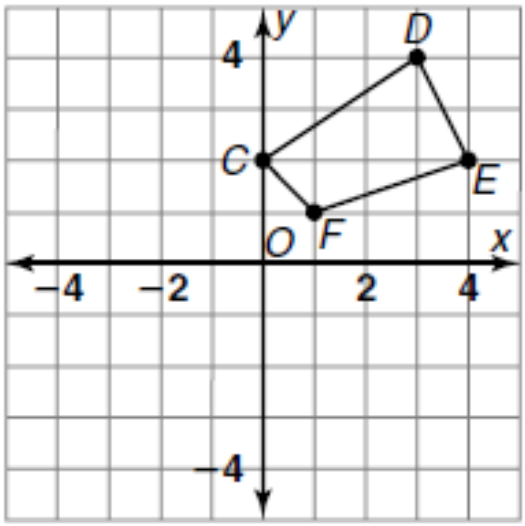
Example 8:

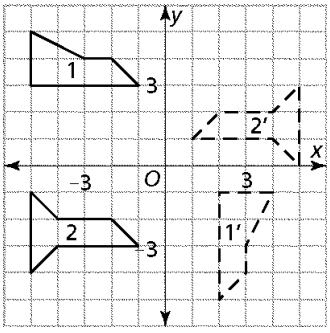
Quadrilateral *CDEF* is plotted on the grid below.

On the graph, draw the reflection of polygon *CDEF* over the *x*-axis. Label the image *C'D'E'F'*.



Now create polygon *C"D"E"F"* by translating polygon *C'D'E'F'* three units to the left and up two units. What will be the coordinates of point *C"*?

Answer _____

Example 9:

Describe how you could move shape 2 to exactly match shape 2' by using one translation and one reflection.