

Warmup 2/(1+1+1+1+1+1+1+1+1+1+1)

Created by Mr. Lischwe

1) What sequence of transformations could map shape "A" onto shape "B"? Be specific!

2) Draw a capital "R" like so:

3) Draw the R after a 90° clockwise rotation.

4) Draw the R after a 180° clockwise rotation.

5) Draw the R after a 270° clockwise rotation.

6) Draw the R using a vertical line of reflection.

7) Draw the R using a horizontal line of reflection.

8) (Challenge) Draw the R after a diagonal line of reflection.

Don't turn your rotations into reflections...

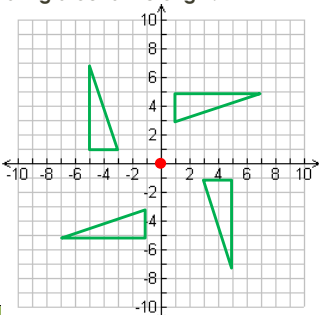
A coordinate plane with x and y axes ranging from -10 to 10. Grid lines are spaced every 1 unit. Two green right triangles are plotted. The first triangle is in the second quadrant with vertices at (-5, 0), (-4, 0), and (-4, 6). The second triangle is in the first quadrant with vertices at (3, 0), (4, 0), and (4, 6). The triangles are reflections of each other across the y-axis.

Which one is the correct rotation around the origin?

The coordinate plane shows a right triangle in the second quadrant with vertices at $(-5, 0)$, $(-5, 6)$, and $(0, 0)$. Two other right triangles, labeled A and B, are shown in the first quadrant. Triangle A has vertices at $(0, 0)$, $(2, 4)$, and $(6, 4)$. Triangle B has vertices at $(0, 0)$, $(4, 2)$, and $(8, 2)$. Dashed lines connect the origin to the vertices $(-5, 6)$ and $(0, 0)$ of the original triangle, and to the vertices $(2, 4)$ and $(6, 4)$ of triangle A. Dashed lines also connect the origin to the vertices $(4, 2)$ and $(8, 2)$ of triangle B.

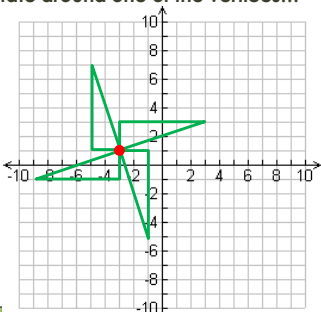
Rotations around OTHER points than the origin...

- Rotating around the origin:



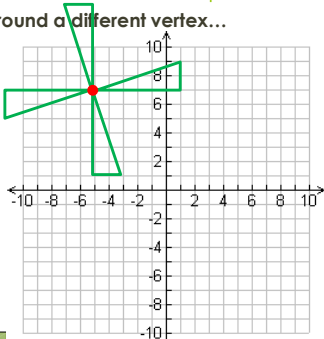
Rotations around OTHER points than the origin...

- Rotate around one of the vertices...



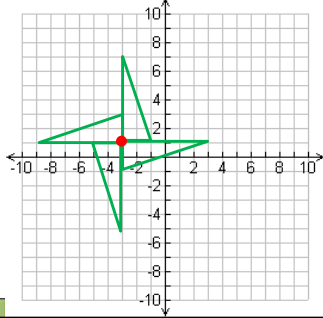
Rotations around OTHER points...

- Around a different vertex...



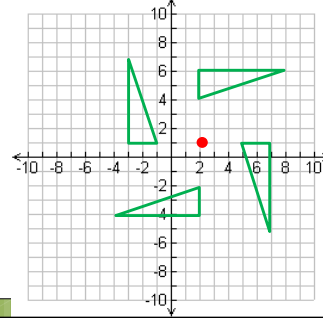
Rotations around OTHER points than the origin...

- Around a different vertex...



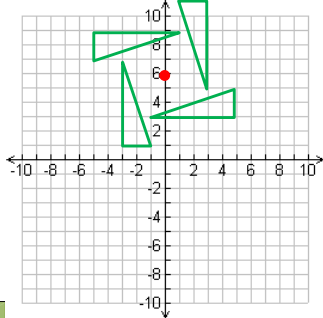
Rotations around OTHER points than the origin...

- Around the point (2, 1)



Rotations around OTHER points than the origin...

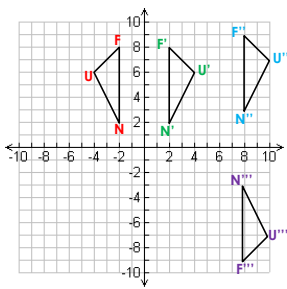
- Around the point (0, 6)



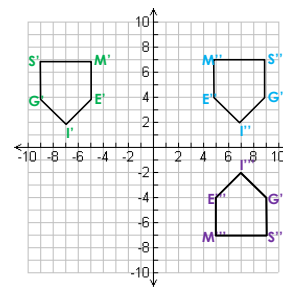
QUIZ TUESDAY:

- Doing transformations without patty paper
- Doing transformations **with** patty paper
- Doing transformations in reverse (today!)

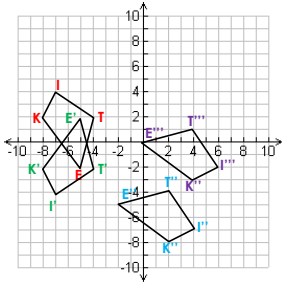
Challenge 1



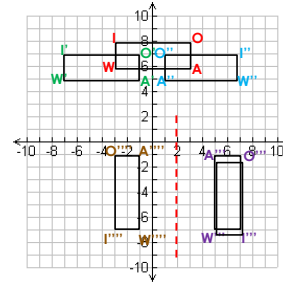
Challenge 2



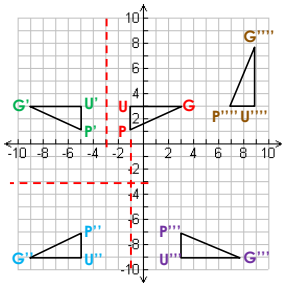
Challenge 3



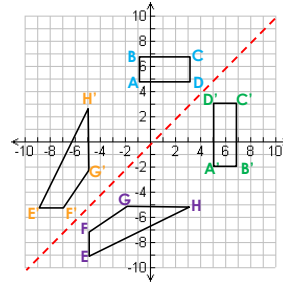
Challenge 4



Challenge 5

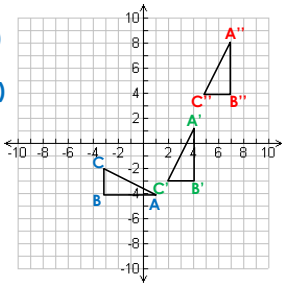


Challenge 6



Challenge 7

A (1, -4)
B (-3, -4)
C (-3, -2)

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Reverse Transformations

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Today's Objectives:

- Perform translations, reflections, and rotations in reverse!

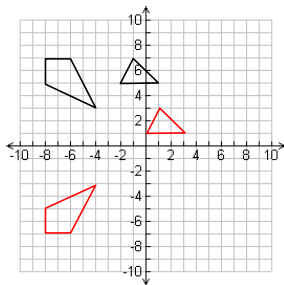
More transformation problems...

ON GRAPH 1

- A triangle was translated **4 units up** and **2 units left**. The image is $A'(-2, 7)$ $B'(-1, 9)$ $C'(1, 7)$. Draw the original triangle **ABC**.
- In reverse: 2 right and 4 down**

ALSO ON GRAPH 1

- A quadrilateral was reflected across the x-axis. The image is $D'(-8, 5)$ $E'(-8, 7)$ $F'(-6, 7)$ $G'(-4, 3)$. Draw the original quadrilateral **DEFG**.
- In reverse: reflect back across the x-axis**



Counterclockwise and clockwise...

- It's very easy to mix these up if you're not careful.

PICTURE A CLOCK!!!

More transformation problems...

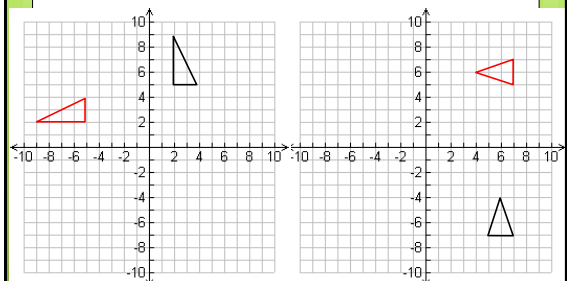
ON GRAPH 2

- A triangle was rotated **90° clockwise**. The image is $A'(2, 5)$ $B'(2, 9)$ $C'(4, 5)$. Draw the original triangle **ABC**.
- In reverse: 90° counterclockwise**

ON GRAPH 3

- A triangle was rotated **270° counterclockwise**. The image is $D'(5, -7)$ $E'(6, -4)$ $F'(7, -7)$. Draw the original triangle **DEF**.
- In reverse: 270° clockwise**

A triangle was rotated **90° clockwise**.



A triangle was rotated **270° counterclockwise**.

More transformation problems...

ON GRAPH 4

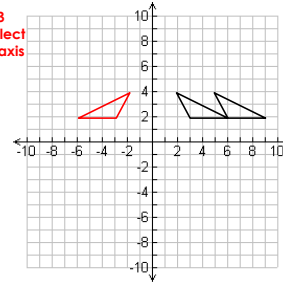
- A triangle was **reflected across the y-axis** and then **translated right 3 units**. The image is **A'(5, 4) B'(6, 2) C'(9, 2)**. Draw the original triangle ABC.
- In reverse: translate left 3 units, then reflect across the y-axis**

ON GRAPH 5

- A rectangle was translated **3 units right** and **5 units down**, and then **rotated 90° counterclockwise**. The image is **D'(3, -7) E'(8, -7) F'(8, -5) G'(3, -5)**. Draw the original rectangle DEFG.
- In reverse: rotate 90° clockwise, then translate 5 up and 3 left**

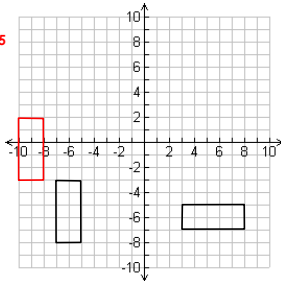
A triangle was **reflected across the y-axis** and then **translated right 3 units**.

In reverse: translate left 3 units, then reflect across the y-axis



A rectangle was translated **3 units right** and **5 units down**, and then **rotated 90° counterclockwise**.

In reverse: rotate 90° clockwise, then translate 5 up and 3 left



More transformation problems...

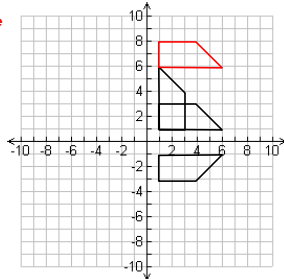
ON GRAPH 6

- A trapezoid was translated **5 units down**, then **reflected across the x-axis** and then **rotated 270° clockwise**. The image is **A'(1, 6) B'(1, 1) C'(3, 1) D'(3, 4)**. Draw the original trapezoid ABCD.
- In reverse: rotate 270° counterclockwise, then reflect across the x-axis, then translate 5 units up.**

A trapezoid was translated **5 units down**, then **reflected across the x-axis** and then **rotated 270° clockwise**.

In reverse:

- rotate 270° counterclockwise
- then reflect across the x-axis
- then translate 5 units up.



HOMEWORK:

- Worksheet – Reverse transformations and Finding your own sequences of transformations