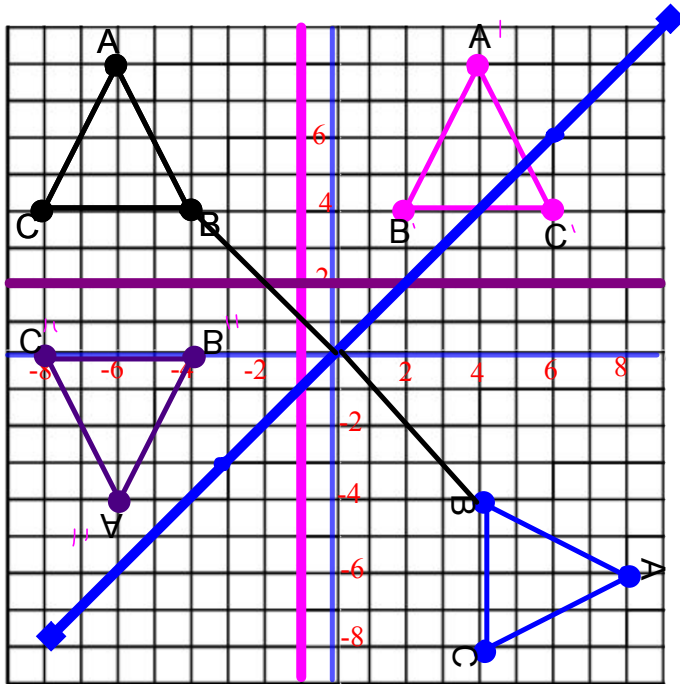


# Warm Up



$A(-6, 8)$

$B(-4, 4)$

$C(-8, 4)$

a) Reflect the triangle ABC about the vertical line -1

$A'(4, 8)$

$B'(2, 4)$

$C'(6, 4)$

b) Reflect the triangle ABC about the horizontal line 2

$A''(-4, -4)$

$B''(-2, -4)$

$C''(-6, -4)$

c) Reflect the triangle ABC about the oblique line (-3, -3) and (6, 6)

$A'''(8, -6)$

$B'''(4, -4)$

$C'''(4, -8)$

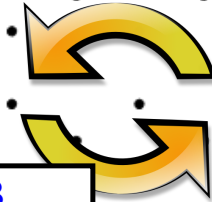
d) What is the Order of Rotation of the triangle ABC

3

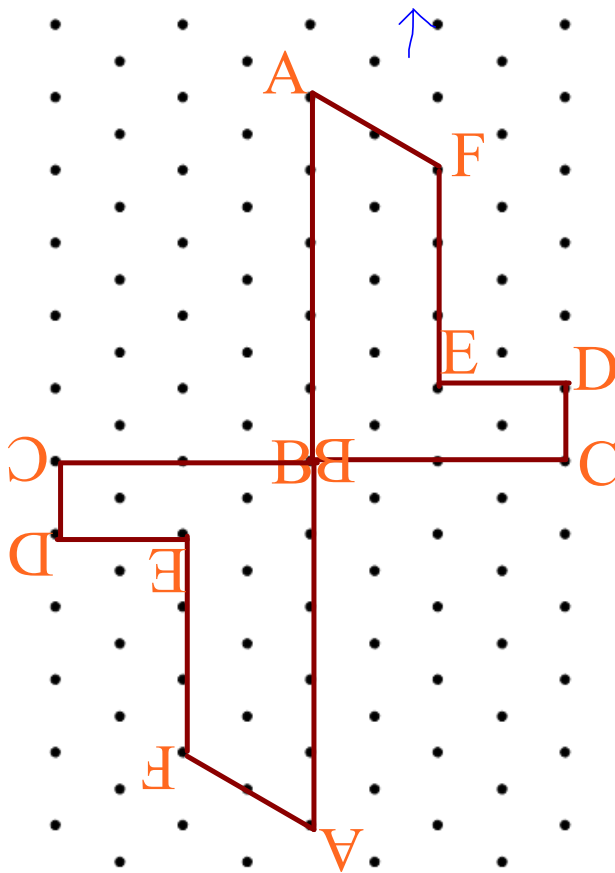
e) What is the Angle of Rotation

$$\frac{360}{3} = 120^\circ$$

# Rotating Images



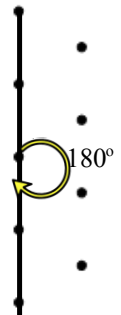
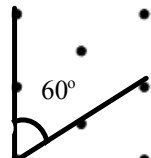
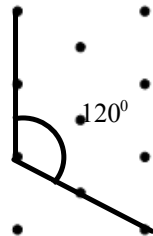
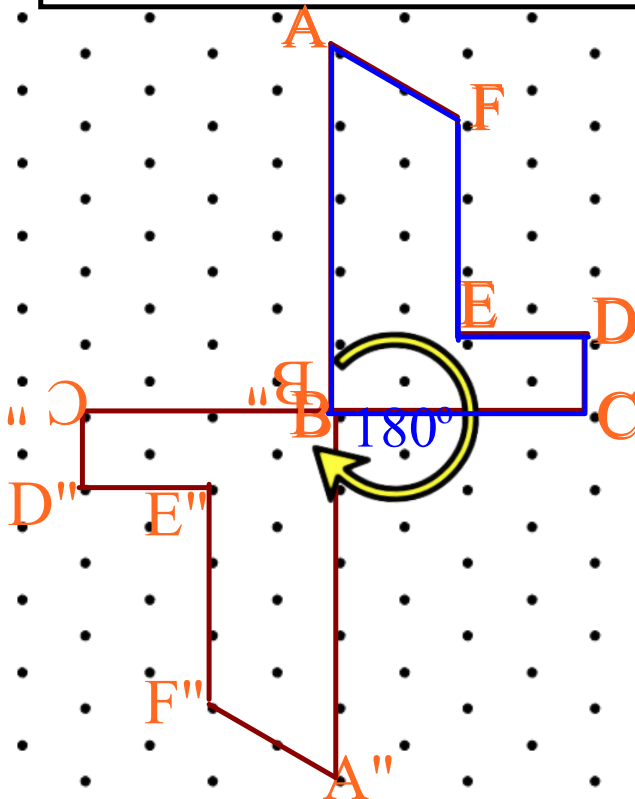
Rotate the image 180° clockwise about vertex B.  
Draw the rotation image.  
Pick a line connected from the vertex of interest



# Rotating Images



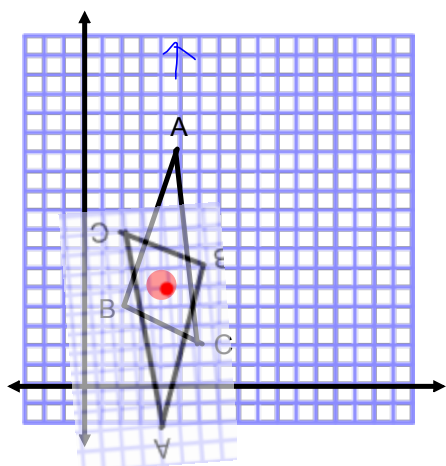
Rotate the image 180° clockwise about vertex B.  
Draw the rotation image.



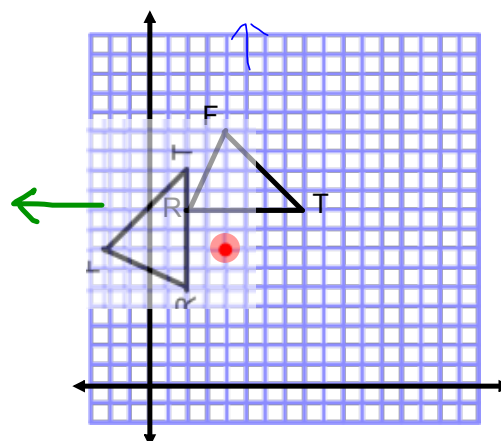
Draw and label the rotated image for each triangle. Label the center of rotation (given in the question)

**Step 1)** Trace the shape on your own paper and rotate that shape holding your finger or pencil at the rotation center.

1) Rotation  $180^\circ$  counterclockwise, center  $R(4, 5)$



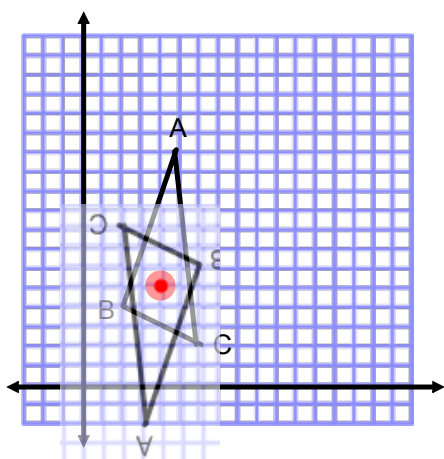
2) Rotation  $90^\circ$  counterclockwise, center  $R(4, 7)$



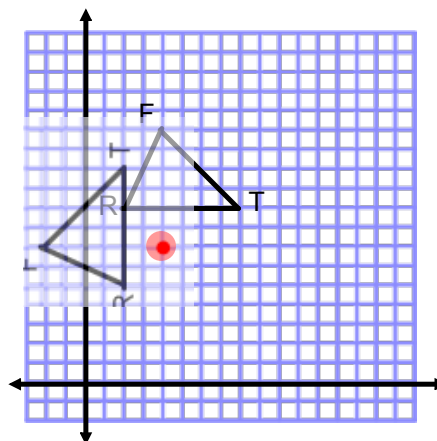
Draw and label the rotated image for each triangle. Label the center of rotation (given in the question)

**Step 1)** Trace the shape on your own paper and rotate that shape holding your finger or pencil at the rotation center.

1) Rotation  $180^\circ$  counterclockwise, center  $R(4, 5)$

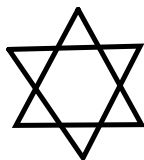


2) Rotation  $90^\circ$  counterclockwise, center  $R(4, 7)$



Determine if the following shapes have rotational symmetry. If so state the order of rotation and the angle of rotational symmetry.

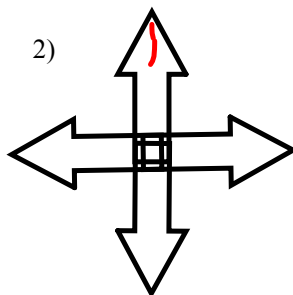
1)



$$\text{Order} = 6$$

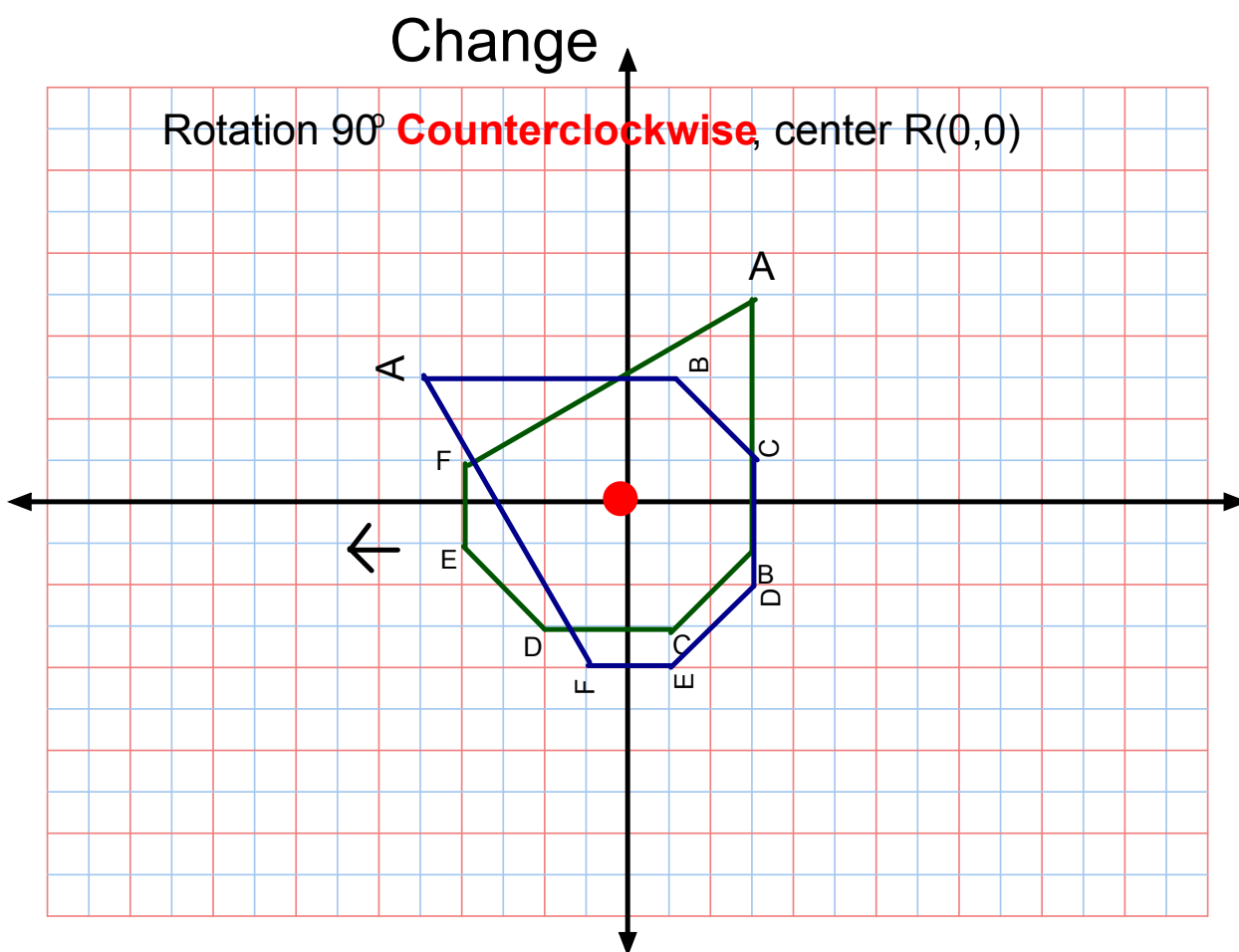
$$\begin{aligned} \angle \text{rot} &= \frac{360}{6} \\ &= 60^\circ \end{aligned}$$

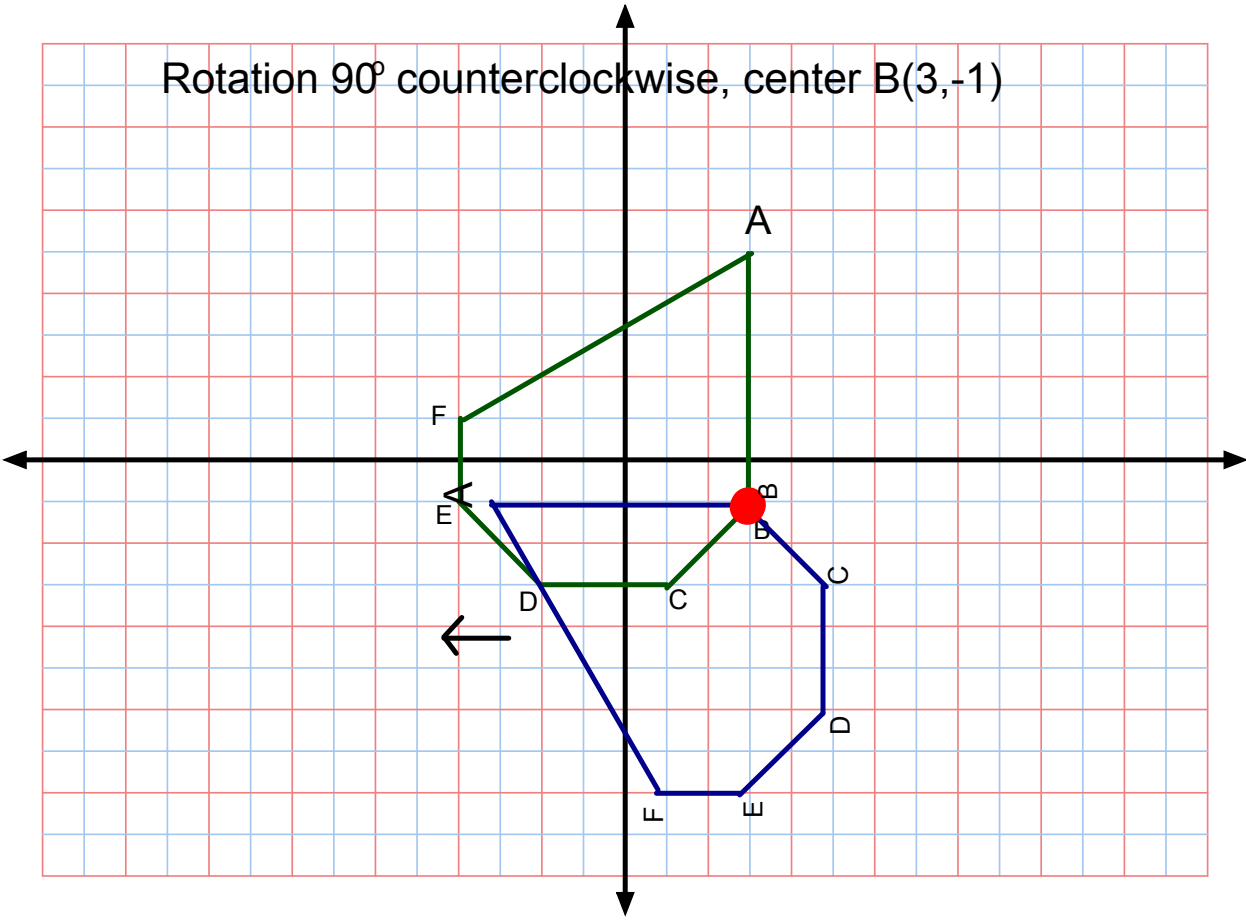
2)



$$\text{order} = 4$$

$$\begin{aligned} \angle \text{rot} &= \frac{360}{4} \\ &= 90^\circ \end{aligned}$$





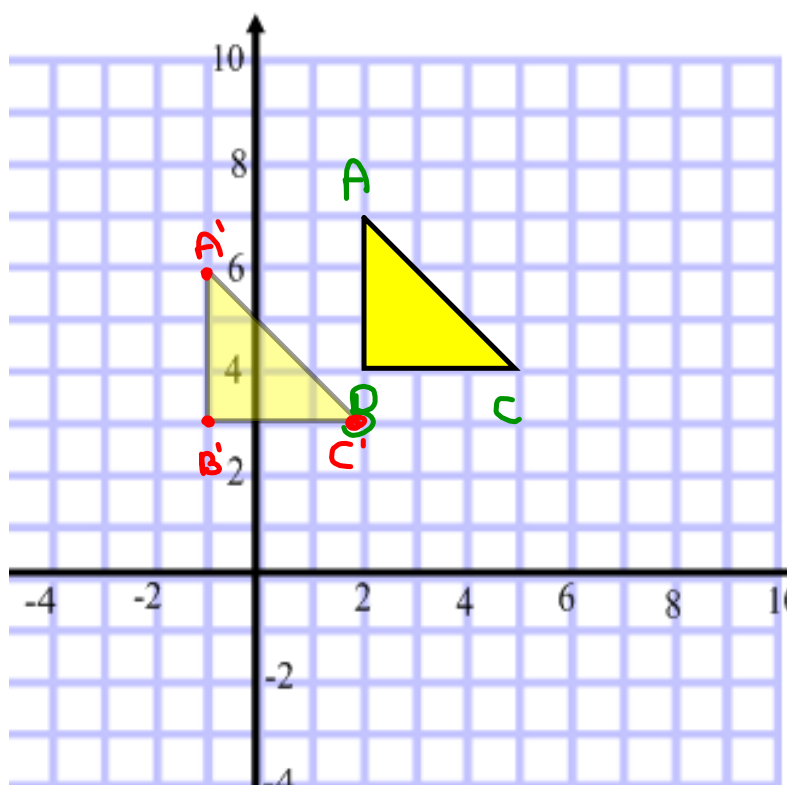




In Geometry, "Translation" simply means **Moving or Slide**

Every point of the shape must move:

- the **same distance**
- in the **same direction.**

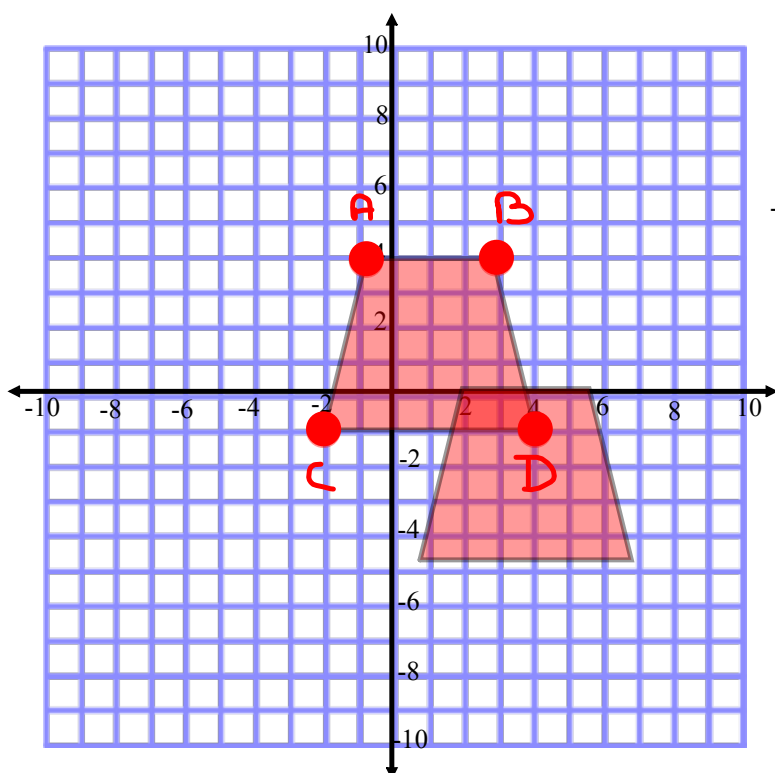


Translate the shape:

Left 3 units and 1 Unit Down

Notation:

L3 and 1D



Translate the shape:  
Right 3 units and 4 Unit Down

Notation:

R3 4D



On grid paper plot the following points:

A (1, 3) B (3,1) and C (5,5)

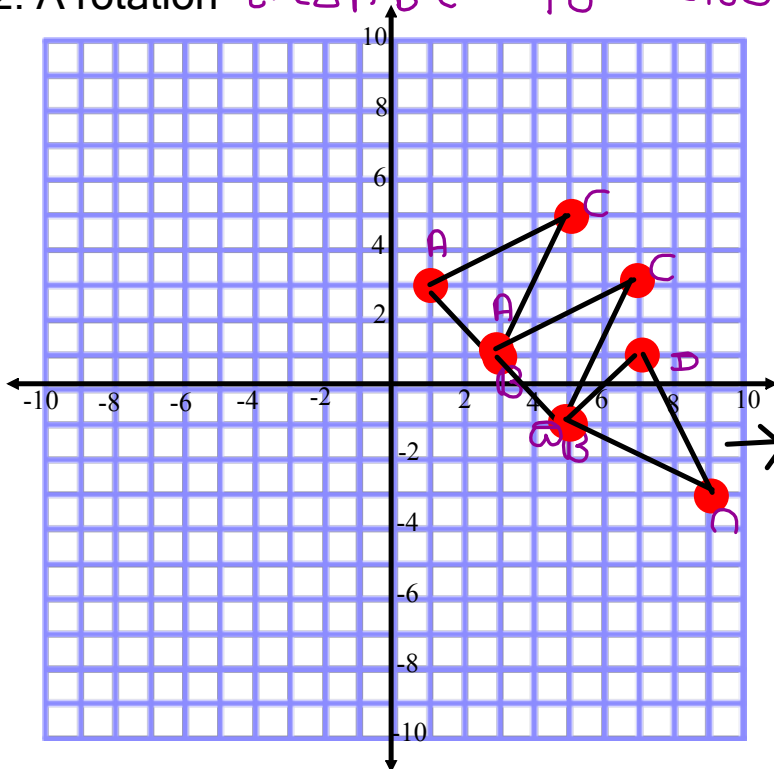


Do the following Transformations:

1. A translation [slide] 2 units right and 2 units down of ABC.

of ABC 180 about vertex C

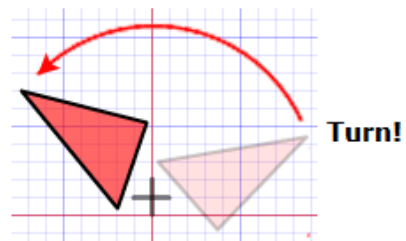
2. A rotation *the  $\Delta A'B'C'$   $90^\circ$  clockwise about  $B'$*



There are three types of transformations:

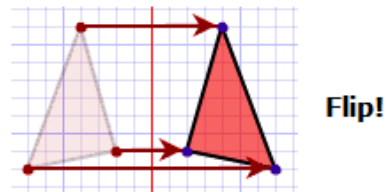
1. reflections [Line of reflection]

- Reflect through x-axis
- Reflect through y-axis
- \*oblique two coordinates



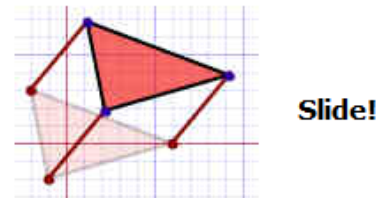
2. rotations

- order of rotation
- angle of rotation



3. translations [slide]

- Left 3 up 2 [L3U2]
- right 4 down 2 [R4 D2]



# Class/Homework

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Questions: 4, 5, 6, ~~7~~, 8

# 9, ~~10~~, 13, 14a, 15

