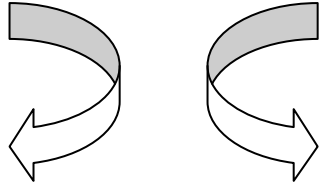
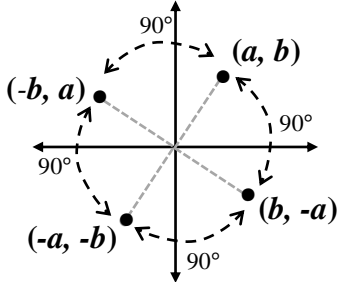


1.3

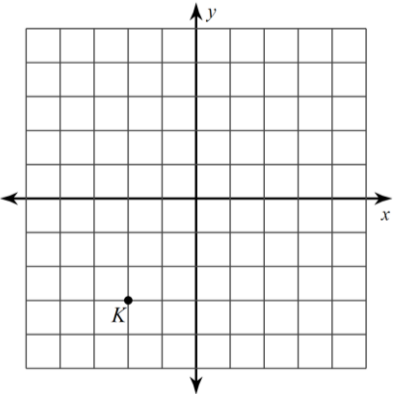
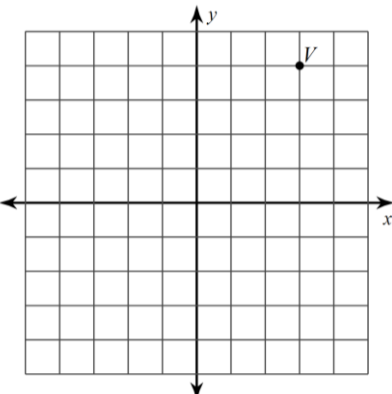
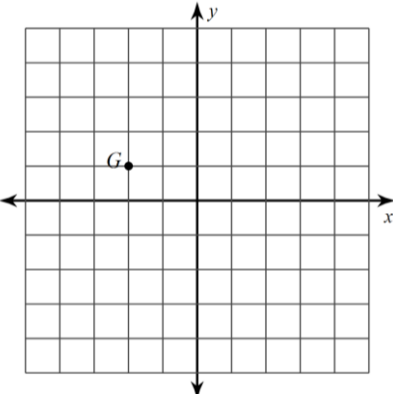
Rotations

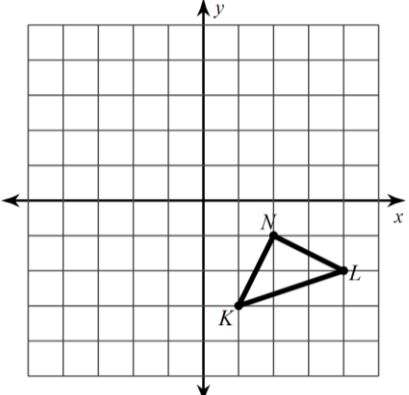


Rotation: 	Center of Rotation:
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Direction Clockwise Counterclockwise 	Degree <ul style="list-style-type: none"> • A full rotation is 360° • every 90° rotation \Rightarrow one quadrant over \Rightarrow order switches $(a, b) \rightarrow (b, -a)$ • $180^\circ =$ two 90° rotations 	
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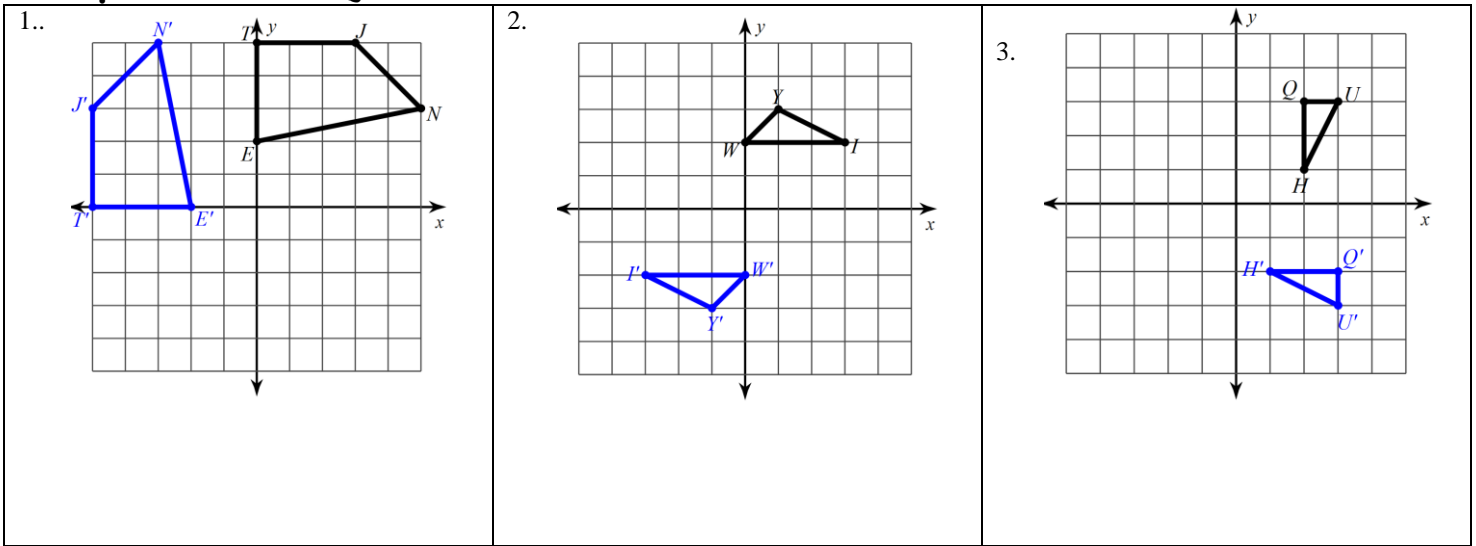
Example 1: Graph the rotation and list the coordinates of the image.

1. 90° clockwise 	2. 180° counterclockwise 	3. 90° counterclockwise 
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4. Find the coordinates of the image of the triangle shown below after a 90° clockwise rotation. Then graph it. 1st : List the coordinates of the preimage 2nd : Use the coordinate rule: $(x, y) \rightarrow (\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$ 3rd : Apply the rule to each vertex. 4th : Graph the image	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Preimage</th> <th style="padding: 5px;">Image</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </tbody> </table> 	Preimage	Image						
Preimage	Image								

5. If $F(17, -31)$ is rotated 90° counterclockwise about the origin, what are the coordinates of F' .	6. If $J(-22, -87)$ is rotated 180° clockwise about the origin, what are the coordinates of J' .
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Example 4: Describing Rotations



DESCRIBING TRANSFORMATIONS (What you need!!!)

	Translations	Reflections	Rotations
What to look for	<ul style="list-style-type: none"> Shapes face the same direction, points are in corresponding spots 	<ul style="list-style-type: none"> Points are directly across from each other, equidistant 	<ul style="list-style-type: none"> Points are on crack...
What to write	<ul style="list-style-type: none"> Coordinate notation 	<ul style="list-style-type: none"> Line of reflection 	<ul style="list-style-type: none"> Degree Direction
Example	<p>Ex: translation $(x, y) \rightarrow (x - 2, y + 8)$</p>	<p>Ex: reflection in the x-axis</p>	<p>Ex: rotation 90° counter-clockwise about the origin</p>
Hint!	<p>HINT! count the spaces horizontally then vertically from the preimage to the image</p>	<p>HINT! Fold your paper to help you find the reflection line</p>	<p>HINT! Count the # of quadrants the figure moves across</p>

Example 5: Describe the transformations. (Be specific)

