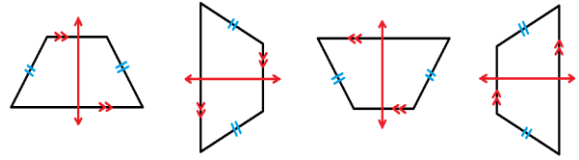


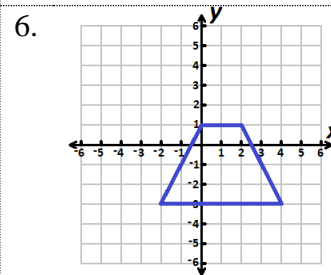
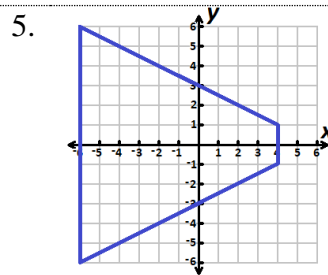
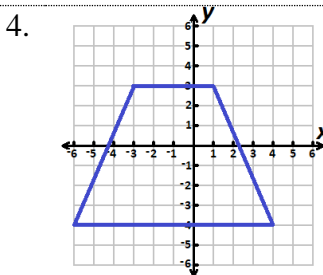
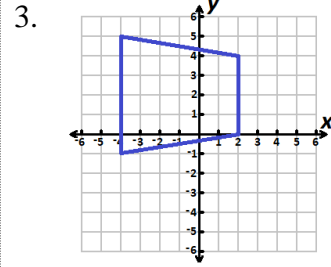
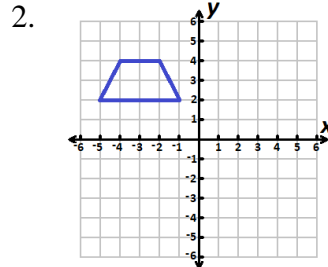
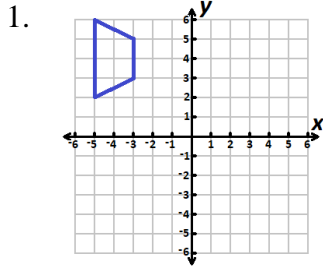
REFLECTIONS AND ROTATIONS ONTO ITSELF

VOCABULARY

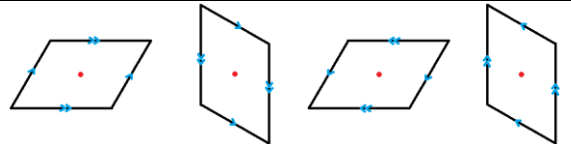
Isosceles Trapezoid – a quadrilateral with a pair of opposite parallel sides, another pair of opposite congruent sides and either one horizontal or vertical line of symmetry onto itself.



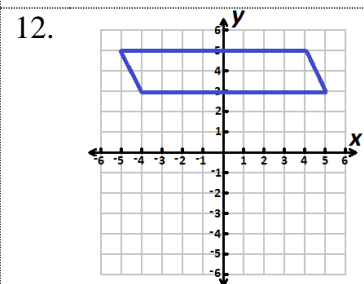
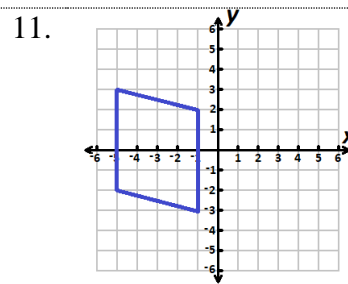
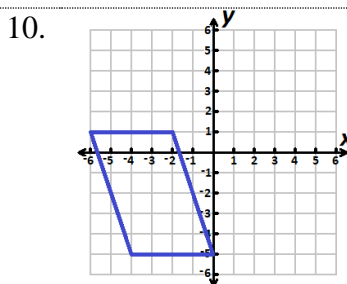
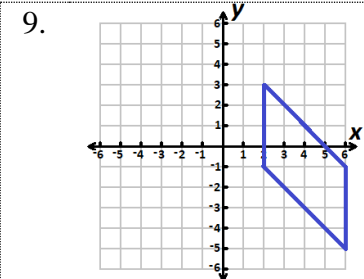
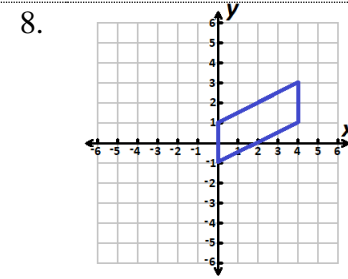
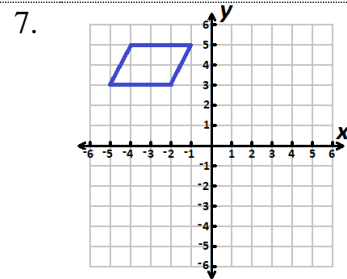
For #1-6, describe the transformation that maps each isosceles trapezoid onto itself.



Parallelogram – a quadrilateral with two pairs of opposite parallel sides and a 180° angle of rotation onto itself about the center of the parallelogram.

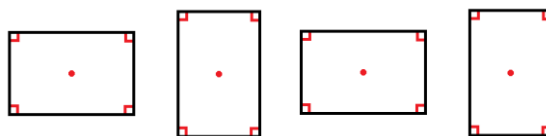


For #7-12, describe the transformation that maps each parallelogram onto itself.

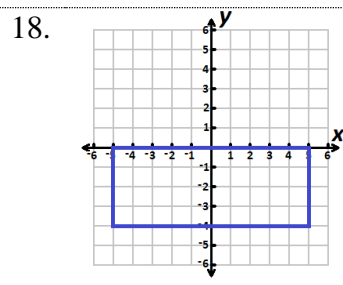
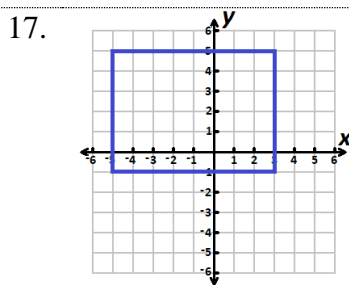
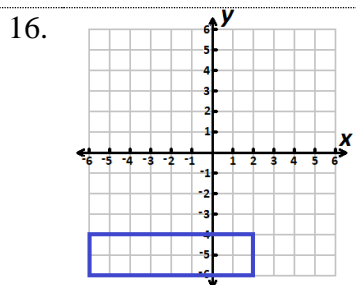
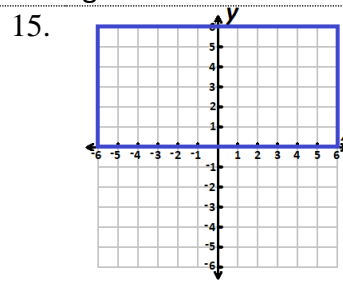
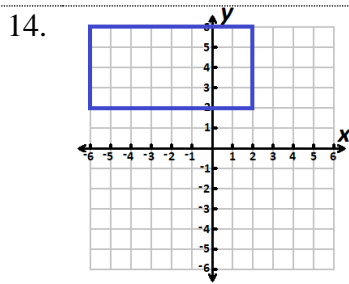
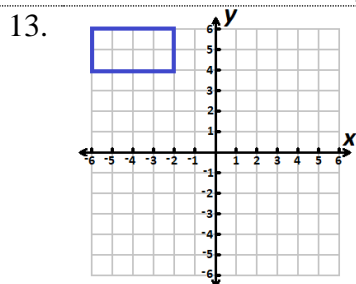


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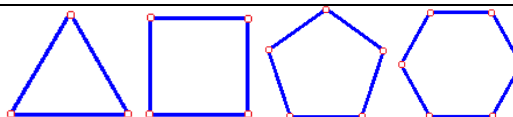
Rectangle – a parallelogram with four right interior angles, a horizontal and vertical line of symmetry onto itself and a 180° angle of rotation onto itself about the center of the rectangle.



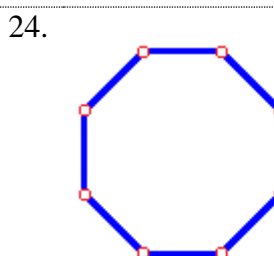
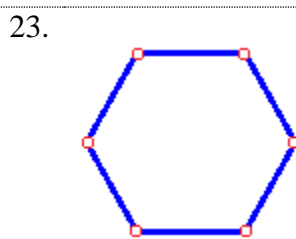
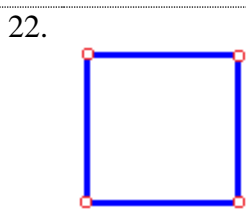
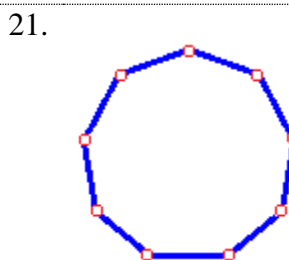
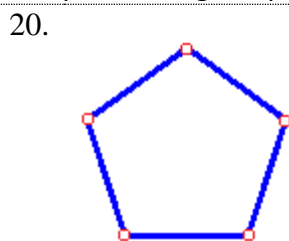
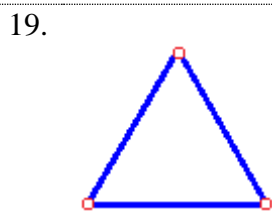
For #13-18, describe the transformation that maps each rectangle onto itself.



Regular Polygon – a polygon that is equiangular (all angles are equal in measure) and equilateral (all sides have the same length).




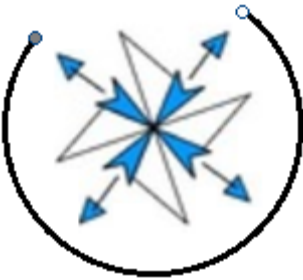
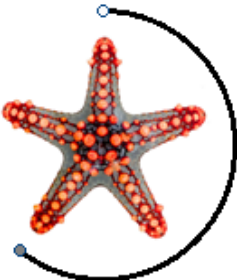
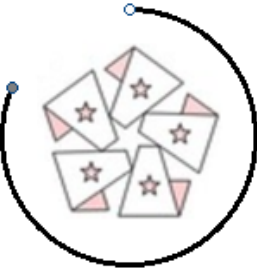
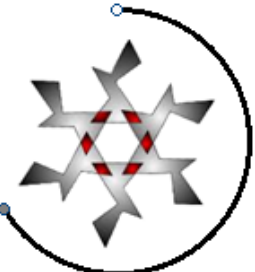


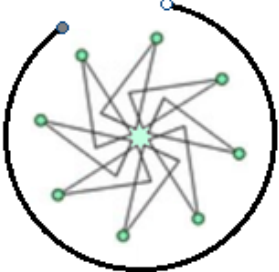


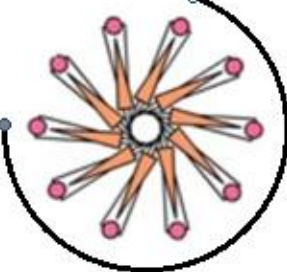



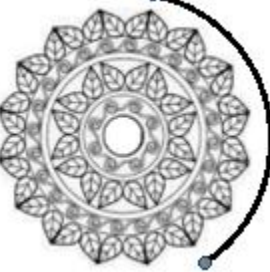
For #19-24, draw all lines of symmetry and write all angles of rotation that maps each regular polygon onto itself.



REFLECTIONS AND ROTATIONS ONTO ITSELF

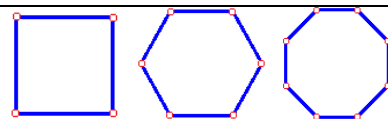
Some shapes have no lines of symmetry but they do have angles of rotation like the shapes below.

For #25-39, write the process and determine the angle of rotation from the open point to the closed point.

<p>25.</p> 	<p>26.</p> 	<p>27.</p> 
<p>28.</p> 	<p>29.</p> 	<p>30.</p> 
<p>31.</p> 	<p>32.</p> 	<p>33.</p> 
<p>34.</p> 	<p>35.</p> 	<p>36.</p> 
<p>37.</p> 	<p>38.</p> 	<p>39.</p> 

REFLECTIONS AND ROTATIONS ONTO ITSELF

Point Symmetry – a 180° rotation of a shape onto itself. For example, a square, regular hexagon and regular octagon all have point symmetry.



40. For each letter, draw all horizontal or vertical lines of symmetry onto itself if possible. Check whether the letter has a horizontal line of symmetry, vertical line of symmetry and/or point symmetry or simply no symmetries at all.

	A	B	C	D	E
Horizontal Line of Symmetry					
Vertical Line of Symmetry					
Point Symmetry					
No Symmetries Onto Itself					

	F	G	H	I	J
Horizontal Line of Symmetry					
Vertical Line of Symmetry					
Point Symmetry					
No Symmetries Onto Itself					

	K	L	M	N	P
Horizontal Line of Symmetry					
Vertical Line of Symmetry					
Point Symmetry					
No Symmetries Onto Itself					

	Q	R	S	T	U
Horizontal Line of Symmetry					
Vertical Line of Symmetry					
Point Symmetry					
No Symmetries					

	V	W	X	Y	Z
Horizontal Line of Symmetry					
Vertical Line of Symmetry					
Point Symmetry					
No Symmetries Onto Itself					