Geometry   September 3, 2013   Name_____

Transformations   period   1   2   3   4   5   6

DIRECTIONS: Complete the following work on your own graph paper.   Show all supporting work on graph paper as evidence of the process you use to solve each problem.   Answer all questions accurately and thoroughly.
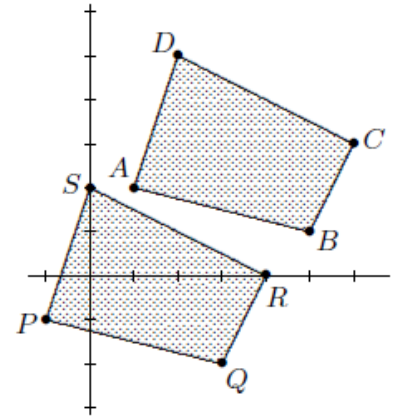
1. Given quadrilateral ABCD with coordinates:

$A(1,2), B(5,1), C(6,3), \& D(2,5)$ as shown on the graph.

Also, given quadrilateral PQRS with coordinates:

$P(-1,-1), Q(3,-2), R(4,0), \& S(0,2)$ as shown on the graph.

Using a complete sentence, state the geometric transformation that describes the relationship between quadrilateral ABCD and quadrilateral PQRS.

2.   On your graph paper, use a straightedge to draw coordinate axes such that $x \in [-8,8]$ and $y \in [-8,8]$.   Plot, label and connect these sets of points to create four distinct quadrilaterals.

  a) $A(1,2), B(5,1), C(6,3), \& D(2,5)$

  b) $A'(-1,2), B'(-5,1), C'(-6,3), \& D'(-2,5)$

  c) $A''(-1,-2), B''(-5,-1), C''(-6,-3), \& D''(-2,-5)$

  d) $A'''(1,-2), B'''(5,-1), C'''(6,-3), \& D'''(2,-5)$

Using complete sentences, state the geometric transformation that describes the relationship between quadrilateral ABCD and each of the following quadrilaterals:

  i) ABCD and A'B'C'D'   ii) ABCD and A''B''C''D''   iii) ABCD and A'''B'''C'''D'''

3.   On your graph paper, use a straightedge to draw a coordinate axes such that $x \in [-8,8]$ and $y \in [-8,8]$.

Plot, label and connect this set of points to create the pre-image quad $A(1,2), B(5,1), C(6,3), \& D(2,5)$.

  a) Rotate ABCD 180 degrees about the ORIGIN center of rotation.
  Label the image A'B'C'D' and state the coordinates of these image points on the graph.
  b) Rotate ABCD **clockwise 90 degrees** about the ORIGIN center of rotation.
  Label the image A''B''C''D'' and state the coordinates of these image points on the graph.
  c) Rotate ABCD **counter-clockwise 90 degrees** about the ORIGIN center of rotation.
  Label the image A'''B'''C'''D''' and state coordinates of these image points on the graph.

pre-image	180° rotation	90° CW rotation	90° CCW rotation
$A(1,2)$			
$B(5,1)$			
$C(6,3)$			
$D(2,5)$			
$P(x,y)$			

4.   On your graph paper, use a straightedge to draw coordinate axes such that $x \in [-8,8]$ and $y \in [-8,8]$.

Plot, label and connect these sets of points to create four distinct quadrilaterals.

  a) $A(1,2), B(5,1), C(6,3), \& D(2,5)$ b) $G(0,5), H(-4,4), J(-5,6), \& K(-1,8)$

  c) $L(-6,-4), M(-2,-3), N(-1,-5), \& P(-5,-7)$ d) $Q(8,-1), R(9,-5), S(7,-6), \& T(5,-2)$

Using complete sentences, state the **combination of geometric transformations** that describes the relationship between quadrilateral ABCD and each of the following quadrilaterals.

  i) ABCD and GHJK   ii) ABCD and LMNP   iii) ABCD and QRST