

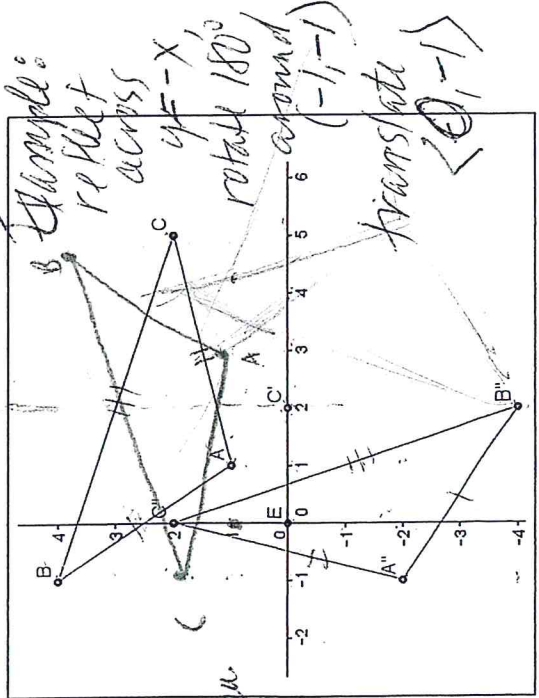
Geometry Homework over transformations and congruence includes reflecting across non-axis lines, etc.

For 1-7: On your own paper... write down coordinates, show any work, circle correct answer.

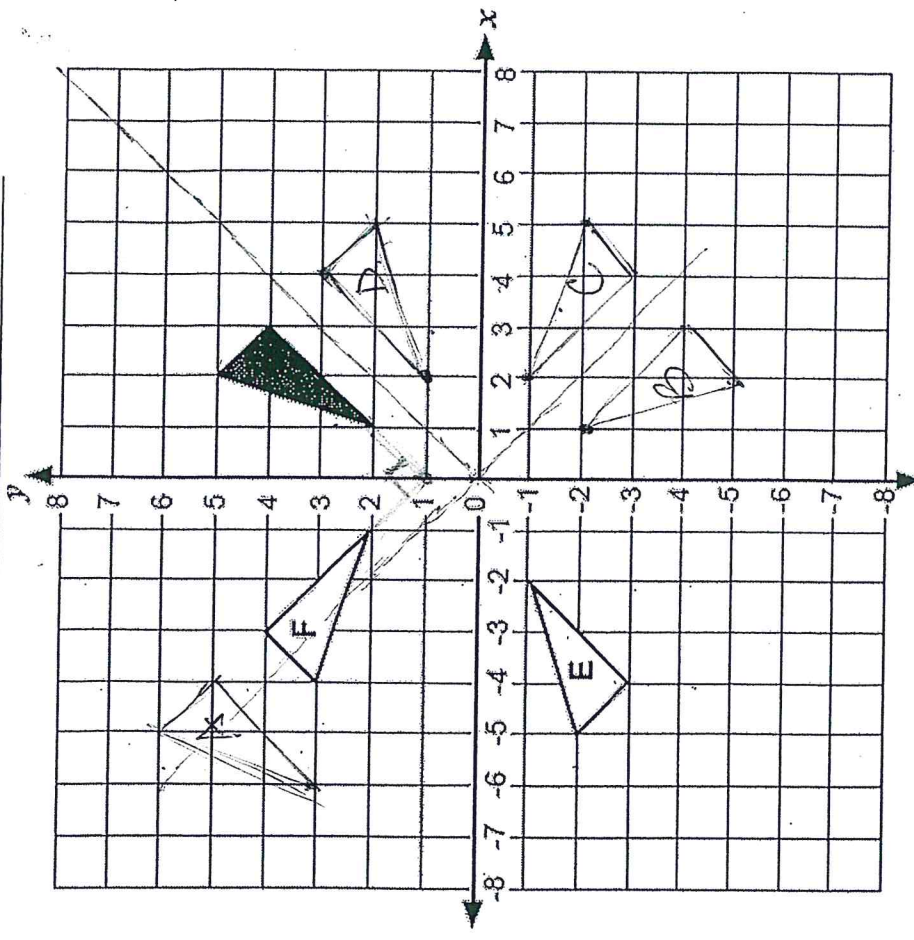
- 1) If  $P(x,y) \rightarrow P'(x+3,y-4)$  and  $P'$  is  $(3,-5)$ , what is  $P$ ?   
  $x-3, y+4 \rightarrow P(0,-1)$
- 2) Point  $A$  has coordinates  $(-2,-4)$  and  $A'$  has coordinates  $(2,-4)$ . What is the axis of reflection?   
  $x=0$  (y-axis)
- 3) If point  $B(1,5)$  is rotated  $270^\circ$  counter-clockwise, what will be the coordinates of  $B'$ ?   
  $90^\circ$  clockwise  $(5,-1)$  is  $B'$
- 4) If point  $C(-5,11)$  is rotated  $90^\circ$ , what will be the coordinates of point  $C'$ ?   
  $(11,5)$
- 5) If  $\triangle CHK$  is translated  $(-2,6)$  to create the image  $\triangle C'H'K'$ , and  $\triangle C'H'K'$  is translated  $(5,-11)$  to create  $\triangle C''H''K''$ , what is the single rule that will map  $\triangle CHK$  to  $\triangle C''H''K''$ ?   
  $-2+5, 6-11 \rightarrow (3,-5) \rightarrow C''(-11,-5)$
- 6) Describe a glide reflection as a composition of two transformations.   
 reflect, translate
- 7) What is a rule that will reflect any figure across  $y=x$ ?   
  $(x,y) \rightarrow (y,x)$

For 8-10: You may use graph paper if wanted. Show all work.

- 8) Polygon  $COWB$  has coordinates  $C(-5,2)$ ,  $O(-4,6)$ ,  $W(0,7)$ ,  $B(-1,3)$ . What are the coordinates of  $C'O'W'B'$  when  $COWB$  is reflected across the x-axis and then the y-axis? What single transformation and its rule can give the same result?   
  $180^\circ$  rotation around  $(0,0)$   $C(5,-2)$ ,  $O(4,-6)$ ,  $W(0,-7)$ ,  $B(1,-3)$
- 9) Reflect  $\triangle XYZ$  across  $y=2$  to find the vertices of  $\triangle X'Y'Z'$ .   
  $X(-3,1)$ ,  $Y(1,5)$ ,  $Z(4,0)$  graph  $X(-3,5)$ ,  $Y(1,-1)$ ,  $Z(4,4)$
- 10) Are the following polygons congruent based on the definitions we learned? Justify your reasoning by a series of mappings explained in words (no rules necessary).



yes - many answers. -  
 Lot students share on screen  
 Did anyone do this in two moves? Share.



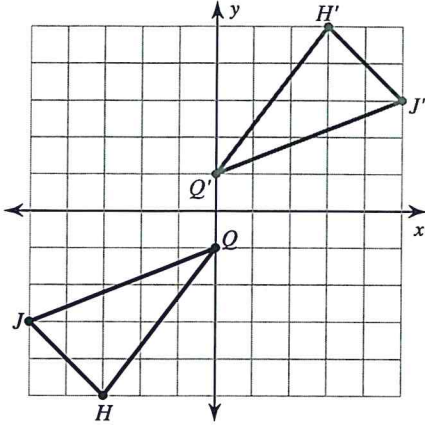
1. Draw the shaded triangle after:
  - a) It has been translated -7 horizontally and +1 vertically. Label your answer A.
  - b) It has been reflected over the x-axis. Label your answer B.
  - c) It has been rotated  $90^\circ$  clockwise around the origin. Label your answer C.
  - d) It has been reflected over the line  $y=x$ . Label your answer D.

2. Describe fully the single transformation that:
  - a) Takes the shaded triangle onto the triangle labeled E.   
 reflect across  $y=x$
  - b) Takes the shaded triangle onto the triangle labeled F.   
 rotate  $90^\circ$  CC around  $(0,1)$
3. Describe a single transformation that has the same effect as rotating a shape  $90^\circ$  clockwise around the origin, then reflecting the result over the x-axis.   
 Shaded to C to D = Shaded to D reflect across  $y=x$

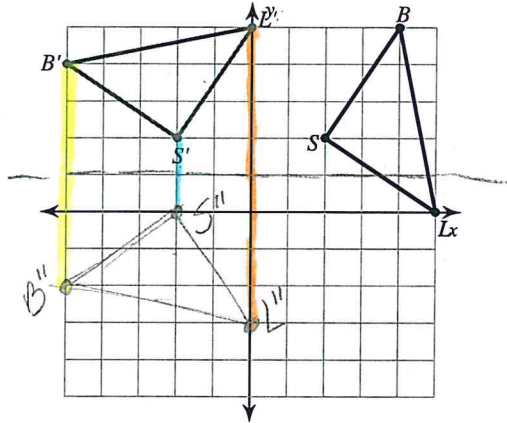
# Rotations of Shapes

Graph the image of the figure using the transformation given.

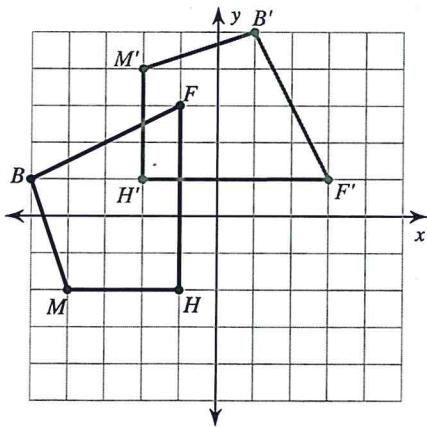
1) rotation  $180^\circ$  about the origin



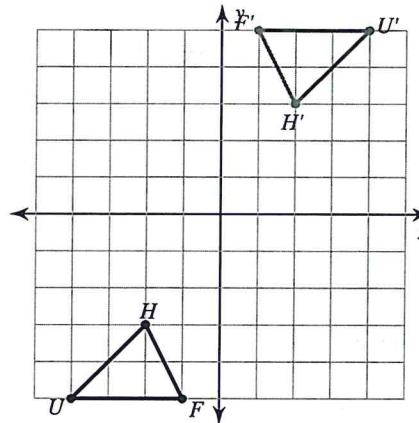
2) rotation  $90^\circ$  counterclockwise about the origin



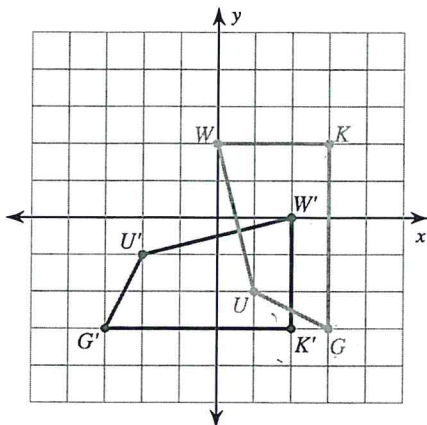
3) rotation  $90^\circ$  clockwise about the origin



4) rotation  $180^\circ$  about the origin



5) rotation  $90^\circ$  clockwise about the origin  
 $U(1, -2), W(0, 2), K(3, 2), G(3, -3)$



6) rotation  $180^\circ$  about the origin  
 $V(2, 0), S(1, 3), G(5, 0)$

