

Name: _____

Date: _____

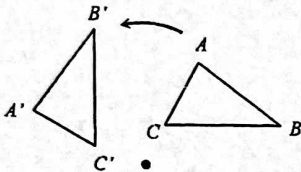
Topic: _____

Class: _____

Main Ideas/Questions

Notes

Rotations



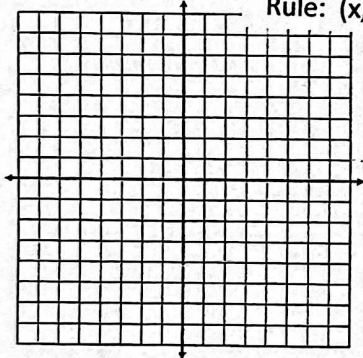
- A _____ around a fixed point called the **center of rotation**.
- The figure rotates at a specific _____ and _____.

Rules for rotating COUNTERCLOCKWISE about the ORIGIN		
90°		
180°		
270°		

Directions: Graph and label each figure and its image under the given rotation about the origin.

1. Triangle ABC with vertices $A(2, 7)$, $B(6, 5)$, and $C(4, 1)$: **90° counterclockwise**

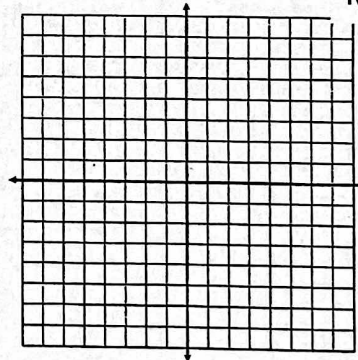
Rule: $(x,y) \rightarrow (\quad , \quad)$



$A' (\quad , \quad)$
 $B' (\quad , \quad)$
 $C' (\quad , \quad)$

2. Square PQRS with vertices $P(2, 6)$, $Q(6, 5)$, $R(5, 1)$, and $S(1, 2)$: **180°**

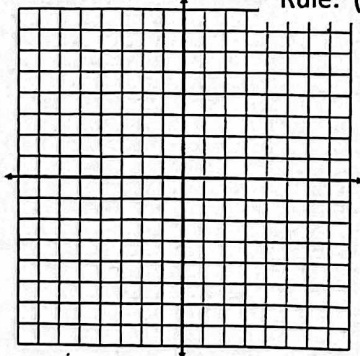
Rule: $(x,y) \rightarrow (\quad , \quad)$



$P' (\quad , \quad)$
 $Q' (\quad , \quad)$
 $R' (\quad , \quad)$
 $S' (\quad , \quad)$

3. Trapezoid JKLM with vertices $J(3, 4)$, $K(6, 4)$, $L(8, 1)$, and $M(1, 1)$: **270° counterclockwise**

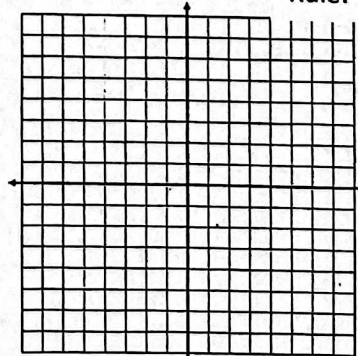
Rule: $(x,y) \rightarrow (\quad , \quad)$



$J' (\quad , \quad)$
 $K' (\quad , \quad)$
 $L' (\quad , \quad)$
 $M' (\quad , \quad)$

4. Triangle XYZ with vertices $X(3, -2)$, $Y(6, 1)$, and $Z(5, -7)$: **180°**

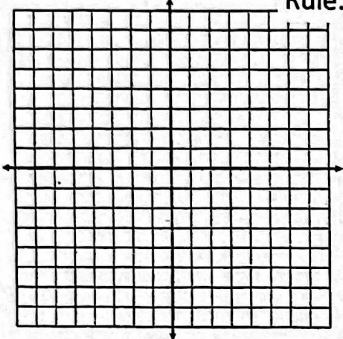
Rule: $(x,y) \rightarrow (\quad , \quad)$



$X' (\quad , \quad)$
 $Y' (\quad , \quad)$
 $Z' (\quad , \quad)$

5. Rhombus $CDEF$ with vertices $C(-5, 5)$, $D(-1, 7)$, $E(-3, 3)$, and $F(-7, 1)$: **270° counterclockwise**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$C' (\quad , \quad)$

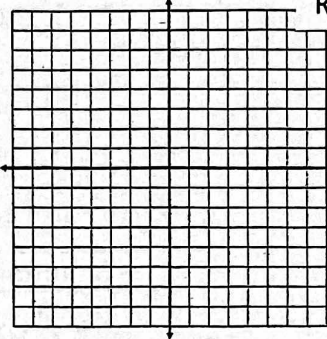
$D' (\quad , \quad)$

$E' (\quad , \quad)$

$F' (\quad , \quad)$

6. Rectangle $TUVW$ with vertices $T(-3, -1)$, $U(0, -2)$, $V(-2, -8)$, and $W(-5, -7)$: **90° counterclockwise**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$T' (\quad , \quad)$

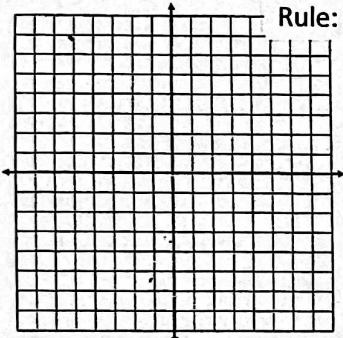
$U' (\quad , \quad)$

$V' (\quad , \quad)$

$W' (\quad , \quad)$

7. Parallelogram $MNOP$ with vertices $M(1, 7)$, $N(8, 5)$, $O(4, 2)$, and $P(-3, 4)$: **180°**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$M' (\quad , \quad)$

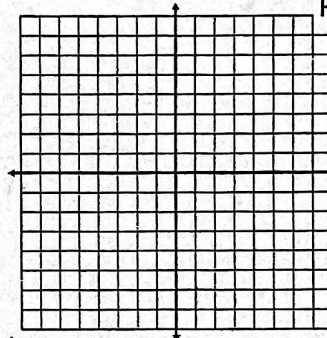
$N' (\quad , \quad)$

$O' (\quad , \quad)$

$P' (\quad , \quad)$

8. Triangle GHI with vertices $G(0, -2)$, $H(7, -6)$, and $I(3, -8)$: **270° counterclockwise**

Rule: $(x,y) \rightarrow (\quad , \quad)$



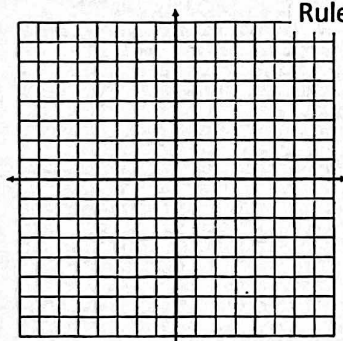
$G' (\quad , \quad)$

$H' (\quad , \quad)$

$I' (\quad , \quad)$

9. Square $ABCD$ with vertices $A(-7, 5)$, $B(-4, 7)$, $C(-2, 4)$, and $D(-5, 2)$: **90° clockwise**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$A' (\quad , \quad)$

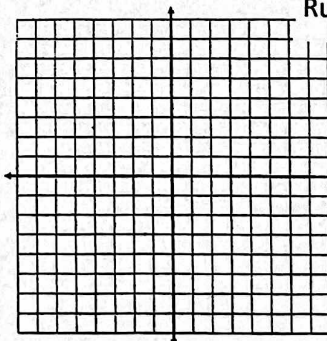
$B' (\quad , \quad)$

$C' (\quad , \quad)$

$D' (\quad , \quad)$

10. Rectangle $WXYZ$ with vertices $W(-3, -5)$, $X(1, -1)$, $Y(3, -3)$, and $Z(-1, -7)$: **180°**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$W' (\quad , \quad)$

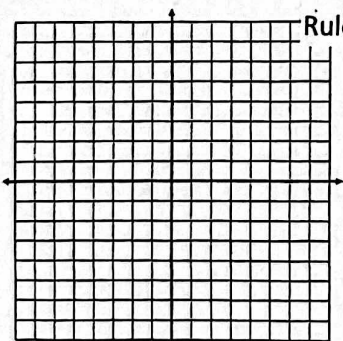
$X' (\quad , \quad)$

$Y' (\quad , \quad)$

$Z' (\quad , \quad)$

11. Triangle DEF with vertices $D(4, 5)$, $E(6, -2)$, and $F(1, -2)$: **270° clockwise**

Rule: $(x,y) \rightarrow (\quad , \quad)$



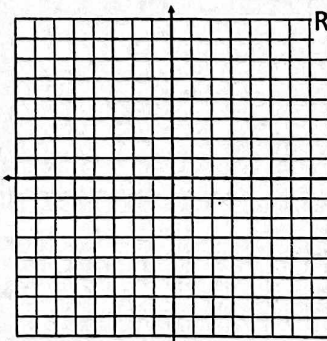
$D' (\quad , \quad)$

$E' (\quad , \quad)$

$F' (\quad , \quad)$

12. Trapezoid $RSTU$ with vertices $R(-6, 7)$, $S(-3, 5)$, $T(-2, 0)$, and $U(-8, 4)$: **180°**

Rule: $(x,y) \rightarrow (\quad , \quad)$



$R' (\quad , \quad)$

$S' (\quad , \quad)$

$T' (\quad , \quad)$

$U' (\quad , \quad)$

Determine the angle of rotation in each problem below given the preimage, image and point of rotation (state both directions of rotation).

