

Key

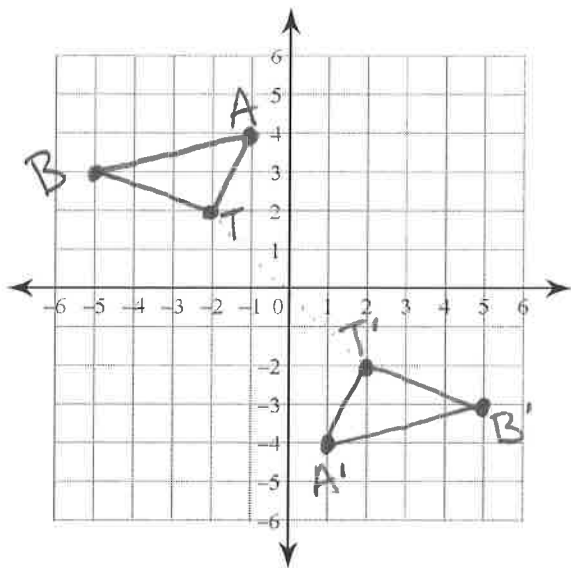
Math 1

5-1 Rotations Practice

Name _____

Date _____

1) Rotate $\triangle BAT$ where $B(-5, 3)$, $A(-1, 4)$, and $T(-2, 2)$ 180° counterclockwise about the origin.



$B(-5, 3)$ $B'(5, -3)$
 $A(-1, 4)$ $A'(-1, -4)$
 $T(-2, 2)$ $T'(2, -2)$

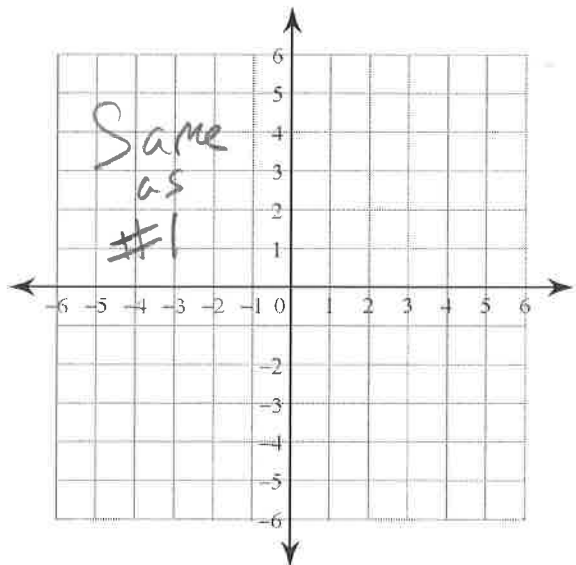
Describe how you did the rotation:

Answers vary

Describe the rule for a 180° counterclockwise rotation:

$$(x, y) \rightarrow (-x, -y)$$

2) Rotate $\triangle BAT$ where $B(-5, 3)$, $A(-1, 4)$, and $T(-2, 2)$ 180° clockwise about the origin.



$B(-5, 3)$ $B'(5, -3)$
 $A(-1, 4)$ $A'(-1, -4)$
 $T(-2, 2)$ $T'(2, -2)$

Describe how you did the rotation:

Same as 180° counterclockwise

Describe the rule for a 180° clockwise rotation:

$$(x, y) \rightarrow (-x, -y)$$

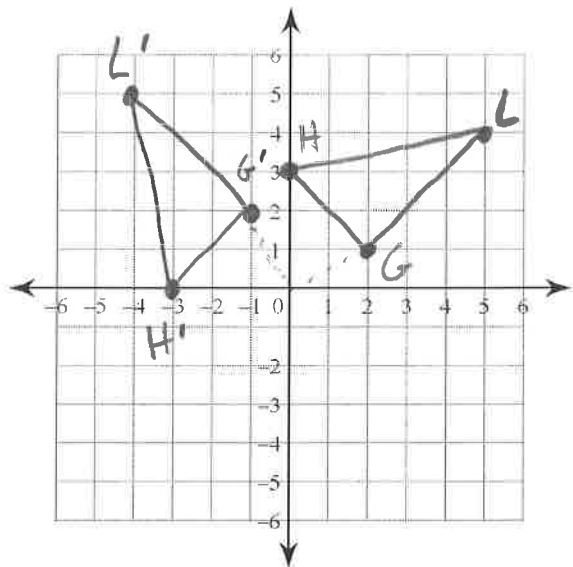
When do you notice about a 180° rotation counterclockwise vs. clockwise?

They are the same thing!

What is the rule for a 180° rotation?

$$(x, y) \rightarrow (-x, -y)$$

3) Rotate $\triangle GHL$, where $G(2, 1)$, $H(0, 3)$, and $L(5, 4)$, 90° counterclockwise about the origin.



$G(2, 1)$	$G'(-1, 2)$
$H(0, 3)$	$H'(3, 0)$
$L(5, 4)$	$L'(-4, 5)$

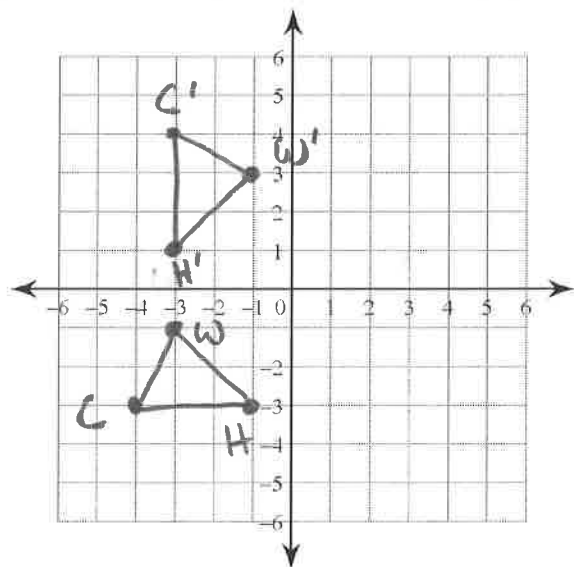
Describe how you did the rotation:

Make right angles @ origin

Describe the rule for a 90° counterclockwise rotation:

$$(x, y) \rightarrow (-y, x)$$

4) Rotate $\triangle WCH$, where $W(-3, -1)$, $C(-4, -3)$, and $H(-1, -3)$, 90° clockwise about the origin.



$W(-3, -1)$	$W'(-1, 3)$
$C(-4, -3)$	$C'(-3, 4)$
$H(-1, -3)$	$H'(-3, 1)$

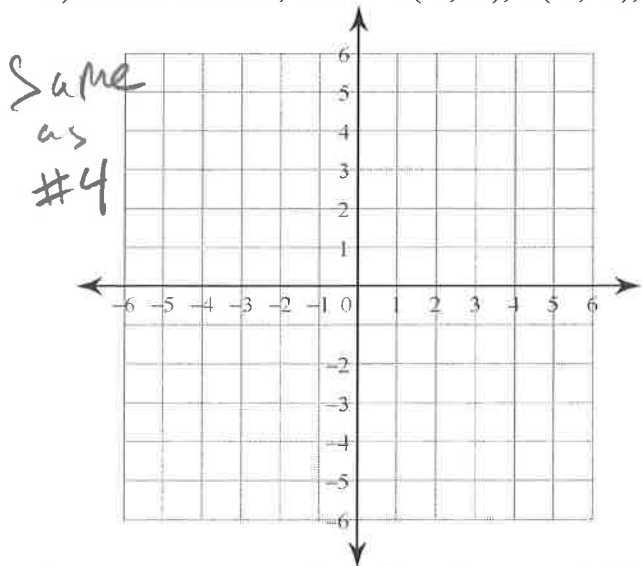
Describe how you did the rotation:

Same as 270° counterclockwise

Describe the rule for a 90° clockwise rotation:

$$(x, y) \rightarrow (y, -x)$$

5) Rotate $\triangle WCH$, where $W(-3, -1)$, $C(-4, -3)$, and $H(-1, -3)$, 270° counterclockwise about the origin.



$W(-3, -1)$	$W'(-1, 3)$
$C(-4, -3)$	$C'(-3, 4)$
$H(-1, -3)$	$H'(-3, 1)$

Describe how you did the rotation:

Answers vary - 270° angle @ origin

Describe the rule for a 270° clockwise rotation:

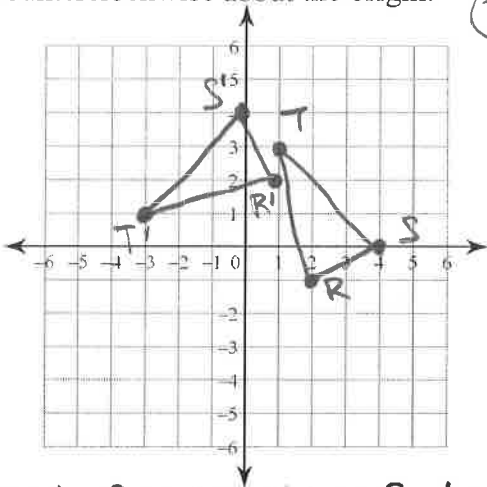
$$(x, y) \rightarrow (y, -x)$$

Compare your rules for 90° clockwise and 270° counterclockwise rotations. Why is it like this?

They are the same since 90° clockwise takes you to the same location as 270° C.C.W.

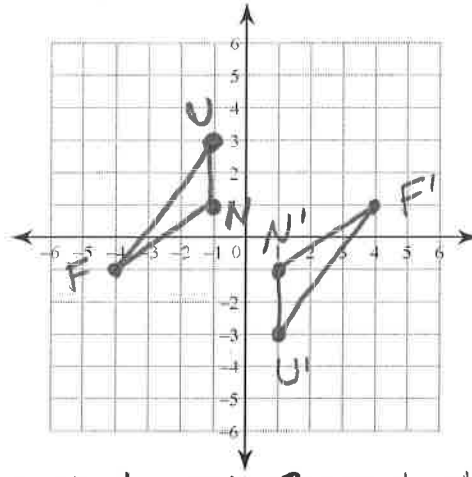
Rotate each triangle as indicated by the problems below.

8) $\triangle RST$: $R(2, -1)$, $S(4, 0)$, and $T(1, 3)$ 90° counterclockwise about the origin. $(-y, x)$



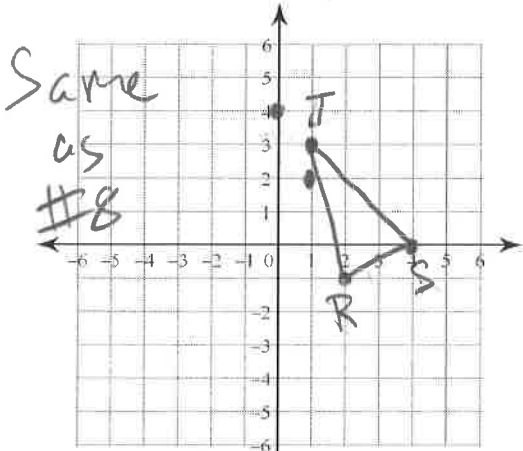
$R'(1, 2)$ $S'(0, 4)$ $T'(-3, 1)$

9) $\triangle FUN$: $F(-4, -1)$, $U(-1, 3)$, and $N(-1, 1)$ 180° counterclockwise about the origin. $(-x, -y)$



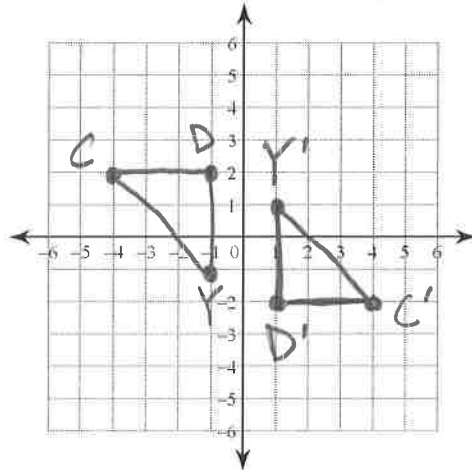
$F'(4, 1)$ $U'(1, -3)$ $N'(1, -1)$

10) $\triangle RST$: $R(2, -1)$, $S(4, 0)$, and $T(1, 3)$ 270° clockwise about the origin. 90° CCW $(-y, x)$



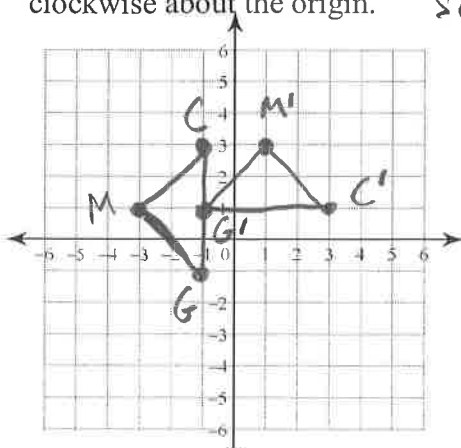
$R'(1, 2)$ $S'(0, 4)$ $T'(-3, 1)$

11) $\triangle CDY$: $C(-4, 2)$, $D(-1, 2)$, and $Y(-1, -1)$ 180° clockwise about the origin. Same as 180° CCW $(-x, -y)$



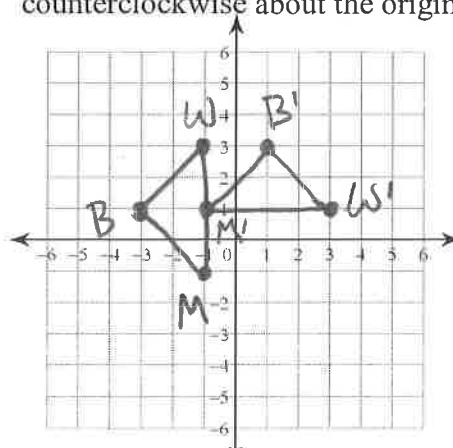
$C'(4, -2)$ $D'(-1, -2)$ $Y'(1, 1)$

12) $\triangle MCG$: $M(-3, 1)$, $C(-1, 3)$, and $G(-1, -1)$ 90° clockwise about the origin. Same as 270° CCW $(y, -x)$



$M'(1, 3)$ $C'(3, 1)$ $G'(-1, 1)$

13) $\triangle BWM$: $B(-3, 1)$, $W(-1, 3)$, and $M(-1, -1)$ 270° counterclockwise about the origin. $(y, -x)$



$B'(1, 3)$ $W'(3, 1)$ $M'(-1, 1)$