Name: Key _____ Date:_____ Period:_____

Transformations Test Review Ms. Cronin

Transformations Test Review

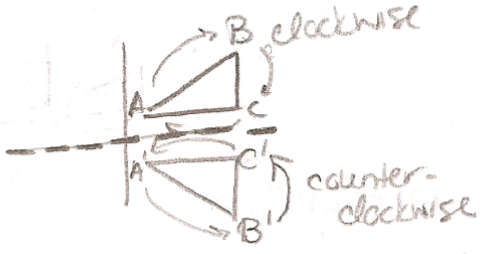
Part I: Multiple choice. Write the number of the best choice on the line provided.

4 **1.** The image of point (-2,3) after a certain translation is (3,-1). What is the image of point (4,2) after the same translation?

(1) (-1,6) **(2)** (0,7) **(3)** (5,4) **(4)** (9,-2)

2 **2.** [redacted] *r x-axis* produces a transformation that is:

(1) a direct isometry
(2) an opposite isometry
(3) an isometry that is both direct and opposite
(4) not an isometry



4 **3.** Which transformation represents a dilation?

(1) (8,4) → (11,7) **(3)** (8,4) → (-4,-8)
(2) (8,4) → (-8,4) **(4)** (8,4) → (4,2)

2 **4.** Which letter has point symmetry but no line symmetry?

(1) E **(2)** S **(3)** W **(4)** I

3 **5.** A transformation maps (1,3) onto (-3,-1). This transformation is equivalent to a

(1) rotation of 90° **(3)** reflection in the line $y = -x$
(2) reflection in the origin **(4)** translation of -3,-1

Part II: Mixed Transformations.

6. $r_{y=-x}$ (0, 5)

(-5,0)

7. $R_{90°}$ (4, 5)

(-5,4)

add -10+4

8. $T_{4,-6}$ (-10, 15)

-6+15

(-6, 9)

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

9. r_{origin} (120, -40)

(-120, +40)

multiply

10. D_{-2} (-4, 3)

(8, -6)

$(x,y) \to (x, 2k-y)$

11. $r_{y=-3}$ (-8, 7)

(-8, 2(-3)-7)

(-8, -6-7)

(-8, -13)

$(x,y) \to (2h-x, 2k-y)$

12. $r_{(-2,4)}$ (5, -3)

(2(-2)-5, 2(4)-(-3))

(-4-5, 8+3)

(-9, 11)

$R_{90}(x,y) \to (y,-x)$

13. $R_{-90°}$ (15, 20)

(20, -15)

14. Transformation D_4 maps a point A to A'(-20, 44). What were the original coordinates of the point A?

$\frac{44}{4} = 11$

D_4( ) → (-20, 44)

$\frac{-20}{4} = -5$

A(-5, 11)

15. The translation $T_{11,-2}$ maps the point Q to Q'(18, 4). What were the coordinates of Q?

18-11=7

T(11,-2) Q( ) → Q'(18, 4)

4-2 = 4+2 = 6

Q(7, 6)

16. What are the values of h and k if the translation $T_{h,k}$ maps M(7, 15) to M'(5, -6)?

$T_{h,k}M(7,15) \rightarrow M'(5,-6)$

$5-7=-2$

$-6-15=-21$

$T_{-2,-21}$

17. Transformation D_k maps (4, -12) to (-2, 6). What is the image of (9, 2) under the same transformation?

$-2/4 = -1/2 = k$

$D_k(4,-12) \rightarrow (-2,6)$

$D_{-1/2}(9,2) \rightarrow (-9/2, -1)$

Part III: Compositions of Transformations.

18. $R_{90°} \circ r_{x\text{-axis}}(12, 5)$

$R_{90°}(12,-5)$

$(5,12)$

19. $r_{y=x} \circ T_{-3,4}(-1, 1)$

$r_{y=x}(-4,5)$

$(5,-4)$

20. $r_{x=1} \circ r_{y\text{-axis}}(0, 17)$

$r_{x=1}(0,17)$

$(2(1)-0,17)$

$(2,17)$

21. $D_2 \circ r_{y=x}(5, -2)$

$D_2(-2,5)$

$(-4,10)$

Part IV: Graphing Transformations.

22. Triangle YES has coordinates Y(-3,4), E(1,9), and S(-3,10).

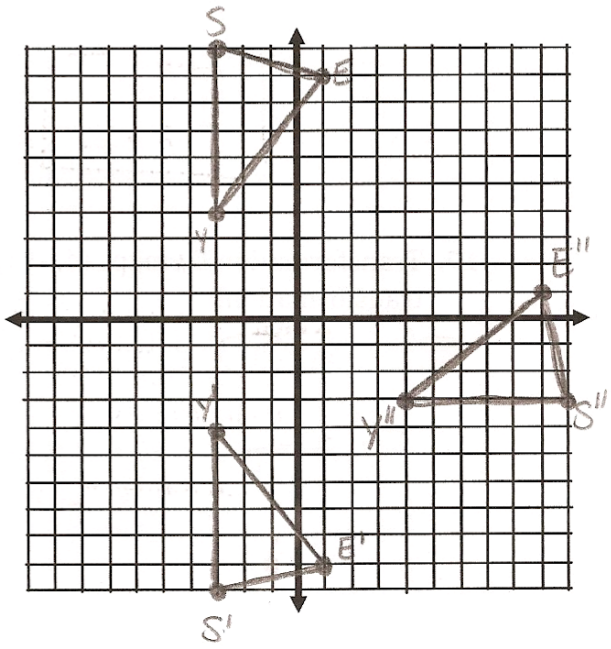
a. Graph and label ΔYES.

b. On the same set of axes, draw and label two images leading to $R_{90°} \circ r_{x\text{-}axis}$ (ΔYES). Label the first image ΔY'E'S' and the second image ΔY"E"S".

c. What are the coordinates of the vertices of ΔY'E'S' and ΔY"E"S"?

$r_{x\text{-}axis}$ then R_{90}:

Y(-3,4) → Y'(-3,-4) → Y"(4,-3)
E(1,9) → E'(1,-9) → E"(9,1)
S(-3,10) → S'(-3,-10) → S"(10,-3)



23. The coordinates of the vertices of ΔCRO are C(-2,-2), R(2,1), and O(0,4).

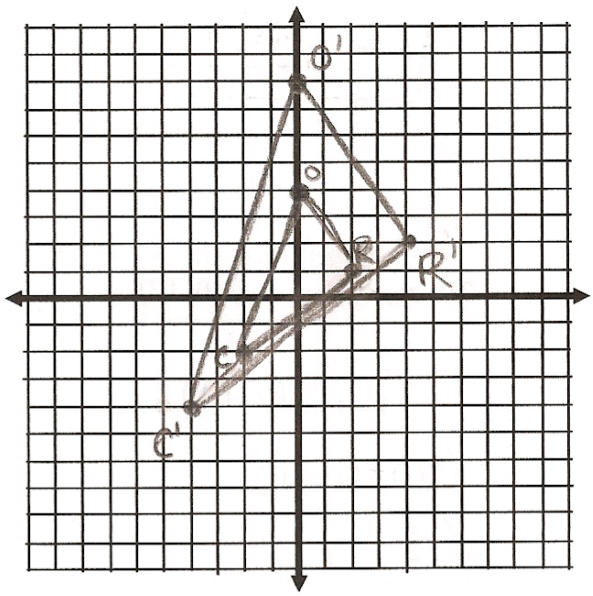
a. Graph and label ΔCRO.

b. Graph and state the coordinates of ΔC'R'O', the image of ΔCRO after the transformation D_2.

c. Is the transformation from part (b) a direct isometry, an opposite isometry, or not an isometry?

(b) D_2:

C(-2,-2) → C'(-4,-4)
R(2,1) → R'(4,2)
O(0,4) → O'(0,8)



(c) It is not an isometry, because the triangles are different sizes.