Name _____ Composition of Transformations

Find the resulting images of the following. Assume all rotations are clockwise, unless stated otherwise.

1. The point (3, -2) is rotated 90° about the origin and then dilated by a scale factor of 4. What are the coordinates of the resulting image?

90° → (-2, -3)

Dil 4 → **(-8, -12)**

2. What is the image of point (4, 2) after the composition of transformations by rotating 90° and then reflecting the image about the y = x line?

90° → (2, -4)

y=x → **(-4, 2)**

3. What is the image of point (1, 1) under the transformation of reflecting about the x-axis and then rotating 90° and then dilated by a scale factor of 3?

x-axis → (1, -1)

90° → (-1, -1)

Dil 3 → **(-3, -3)**

4. What are the coordinates of point A', the image of point A(-4, 1) after the composition transformation of rotating 270° counter-clockwise and reflecting about the y = x line where the origin is the center of rotation?

270° CC → (1, 4)

y=x → **(4, 1)**

5. The coordinates of ΔJRB are J(1, -2), R(-3, 6) and B(4, 5). What are the coordinates of the vertices of its image after the transformation of a translation (x + 2, y – 1) and then a reflection about the y-axis?

(x+2, y-1) → (3, -3) (-1, 5) (6, 4)

y-axis **(-3, -3) (1, 5), (-6, 4)**

6. If the coordinates of point P are (2, -3), then what is the resulting image after rotating the point 180° and then rotating it again 90°?

180° → (-2, 3)

90° → **(3, 2)**

7. Find the coordinates of reflection about the y-axis and then reflecting about the y = x line if the coordinates of the original point are (6, 1).

y-axis (-6, 1)

y=x **(1, -6)**

8. Find the coordinate of the image of (2, 4) under the transformation of a reflection about the y-axis and then a translation of the figure using (x + 3, y – 5).

y-axis → (-2, 4)

(x+3, y-5) → **(1, -1)**

9. What is the image that results from the composition of transformation of reflecting about the x-axis and then rotating 90° counter-clockwise the point (-3, 0)?

x-axis (-3, 0)
90° CC. (0, -3)

10. Find the coordinates of point N(-1, 3) under the composition of reflecting about the y-axis and then rotating 90°.

Y-axis (1, 3)
90° (3, -1)

11. If the coordinates of A are (2, -3), what are the coordinates of A', the image of A after a rotation of 270° counter-clockwise and then a reflection about the y-axis?

270° CC. (-3, -2)
y-axis (3, -2)

12. If the coordinates of B are (1, -5), what are the coordinates of B', the image of B after a rotation of 90° and then a reflection about x-axis, and then a rotation of 180°?

90° → (-5, -1)
x-axis → (-5, 1)
180° → (5, -1)

13. Find the image of point A(3, -2) under the composition of translations (x + 2, y + 1) and then (x – 6, y – 4) and then a reflection about the origin.

(x+2, y+1) → (5, -1)
(x-6, y-4) (-1, -5)
about origin (1, 5)

14. What coordinate would result if the beginning point is (3, 2) if there was a reflection about the y-axis and then a 180° rotation?

y-axis → (-3, 2)
(-x, -y) 180° → (3, -2)

15. Write a single translation that is equivalent to the transformation (x + 3, y – 1) followed by (x – 5, x + 5).

(x-2, y+4)