Make your thinking visible (algebraic mapping or graphs). Attach paper if necessary.

1. Graph ΔABC with $A(-2,5), B(1,5), C(1,9)$.
   Reflect ΔABC over $y = 2$ and then reflect the image over $y = -6$.
   What <u>single</u> rule describes the composition of reflections over parallel lines?

2. Which of the mapping rules represents the rigid motion described in the statement?
                    ΔABC is reflected over the line $y = x$ and then translated up 4 units.

   A. $f(x, y) = (y + 4, x + 4)$
   B. $f(x, y) = (y + 4, x)$
   C. $f(x, y) = (y, x + 4)$
   D. $f(x, y) = (y, x - 4)$

3. $\overline{AB}$ has endpoints $A(5,1)$ and $B(1, -3)$. The segment will be reflected over the x-axis and then reflected over the y-axis producing an image segment. Which additional transformation will map the image segment back onto the original segment?

   A. Translation six units right and two units down
   B. Rotation 180° around the origin
   C. Reflection across the line $y = x$
   D. Reflection across the line $y = -x$

4. Point A was translated three units to the right and four units down and then reflected across the line $y = -x$ to produce $A''(0,7)$. Determine the coordinates of point A.

5. Trapezoid AFHS is located at $A(-10,2), F(-8,2), H(-8,5), S(-11,5)$. The trapezoid is reflected over $x = -8$. This image is rotated 180° about the origin. The resulting image in then translated up 4 units and left 16 units. What additional transformation is necessary to map the final image back onto trapezoid AFHS?