In each case, find a 3×3 matrices that produces the 2D transformation in homogeneous coordinates. Use *Mathematica* to verify your answer.

1. Translate by $(3, 5)$ then reflect across the x-axis

2. Reflect across the x-axis then translate by $(3, 5)$

3. Rotate by $\dfrac{2\pi}{3}$ counter-clockwise about the point $(-5, 4)$